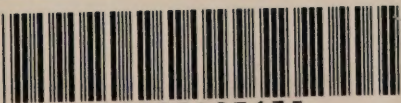


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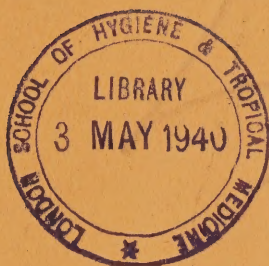
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Hygiene

A SANITARY WEEKLY PAPER

(Established in 1887).

DEVOTED TO THE CONSIDERATION OF

*Public Health, House Building, Drainage, Ventilation, Foods, Beverages,
Dietetics, Adulteration, Health Resorts and Mineral Springs,
Domestic Medicine and Sanitation, Regimen for the Sick, Room,
New Articles of Food, New Remedies and Inventions,*

WITH MANY OTHER

MATTERS OF SANITARY AND SOCIAL IMPORTANCE.

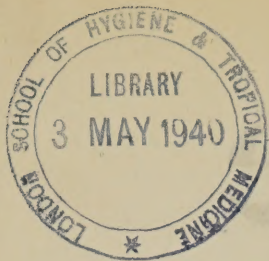
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HYGIENE,

A SANITARY AND SOCIAL MAGAZINE.

VOL. VII.]

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EDITORIAL AND PUBLISHING NOTICES.

EDITORIAL.—The Editor begs to express his thanks to numerous correspondents, and to state that he will be pleased to receive any articles or correspondence coming within the scope of *HYGIENE*, reports of medical officers of health, items of general or local sanitary interest, newspapers (marked at the part to which it is desired to draw attention), &c.

Amongst articles which will appear in early numbers of *HYGIENE* are:—Architecture in Relation to Hygiene, by Percival G. Smith, Esq., Architect to the Local Government Board; Gardens of Rest, by Rev. W. Armstrong Willis; Hay-Fever, Hay-Asthma, or Summer-Catarrh; Patent Medicines, Clarke's Blood Mixture, &c.; British Health Resorts; Scotch Crofters' Cottages; Public Health Reports; and many other papers of interest.

PUBLISHING.—The terms of subscription not having been raised, although under the new arrangement fifty-two numbers instead of twelve will be sent out annually, all subscriptions now running will continue good for the original period.

Subscribers in arrear are requested to kindly forward their subscriptions without delay, as the keeping of small accounts involves considerable trouble and loss of time.

HYGIENE will be forwarded, post free, to all parts of the Kingdom, and to all countries within the Postal Union (including the United States, Canada, France, Germany, Belgium, Italy, Austria, Hungary, Spain, Portugal, Switzerland, the Netherlands, Russia, Denmark, Sweden, and Norway), on the following prepaid terms:—Twelve months, 6s. 6d.; six months, 3s. 6d. Subscription terms for Australia, India, the Cape, and all other parts of the world can be ascertained by inquiry at *HYGIENE* office.

Our Change of Publication.

FROM time to time we have received individual suggestions from friends, whose judgment we esteem as highly as we value their good opinion, urging upon us the desirability of publishing *HYGIENE* at more frequent periods. Though it was impossible, and indeed would have been ungrateful, to wholly disregard such kind advice, coming as it did from men whose continuous co-operation and ready assistance we had enjoyed for six years, we naturally hesitated to follow it, until we had ascertained the views of the majority on the subject.

Eventually we decided to let our readers settle the question, and, following the fashion of the day, we had resort to a species of Option voting by taking a poll amongst our subscribers. It was not necessary to go through the list, for a preponderating proportion of those who were consulted, about 850 per thousand, expressed themselves strongly in favour of a weekly issue, instead of monthly as hitherto. Such an arrangement must, of course, involve additional trouble and expense, but we readily fall in with the wishes of our readers. The terms of subscription will remain the same as previously.

The principles upon which *HYGIENE* will be conducted will be the same as those which we have hitherto adhered to. While continuing to endeavour to inculcate the importance of sanitary measures, we shall be careful to keep up the high reputation which *HYGIENE* has

so long held. We shall advocate to the best of our ability the grand truths conveyed in the Latin proverb, "*Mens sana in sano corpore.*" The existence of a healthy mind in a healthy body is the best guarantee of the happiness and usefulness of an individual, thus tending to the prosperity and well-doing of a community.

'Tis not in mortals to command success," but, at any rate, we can do our best to deserve it; and we have little doubt of the issue if the many kind friends who have sustained and assisted our efforts during the past six years will continue to give us their aid and co-operation in our enlarged field of operations.

PUBLIC HEALTH REPORTS.

Epping Rural Sanitary District.—This portion of Essex, lying within easy reach of the Metropolis, occupies an area of 48,099 acres, and is about sixteen miles in length by eight in width. The estimated number of inhabitants at the middle of last year was 26,684, thus making the density of population equal to about one living person to every two acres. Here there ought to be no overcrowding, one would innocently suppose, but, just as is the case in many other rural districts, overcrowding is one of the sanitary defects which give most trouble to the officials. The chief reason of this appears to be the insufficiency of cottage accommodation; so that not only are many of the cottages overcrowded, but some have families living in them, notwithstanding the circumstance that they are more or less unfit for human habitation. Eleven cottages were condemned as being absolutely unfit for occupation last year. Referring again to the subject of density of population, it should be mentioned that, in the Chigwell division of the district, much of the land is wooded, constituting part of Epping Forest. This division (Chigwell) is the nearest portion of the district to London, and the population is increasing more rapidly than in the other two districts, Epping and Harlow.

Geologically, Dr. Trevor Fowler says, the general features are similar to those which obtain in the greater part of the county in which it is situated, namely, the London clay, with between it and the vegetable mould alluvial beds of marl and loam, which often alternate with gravel and sand, and have a thickness sometimes of 30 or 40 feet. The marl and loam predominate in the southern and central parts of the district, whilst the beds of gravel and sand are more common in the

northern portion. The nature of the soil and climate are favourable to vegetation, but the excess of moisture tends to produce cold, fogs, and exhalations in the spring and autumn, rendering these seasons somewhat trying to the aged and delicate.

But the death-rate for 1892 was low, being only 14·2 per 1,000. It has not been so low as this since 1881, when it was 14 per 1,000. The rate of infantile mortality was also low last year, owing to the comparative absence of zymotic diseases. Measles was the most fatal of these, causing five deaths; scarlet fever existed in an epidemic form in various localities during the twelve months, but it was for the most part of a mild type, and as the cases, upon notification, were either removed to the sanatorium or promptly isolated, not a single death occurred from scarlet fever. In this respect it contrasts favourably with measles, which is, unfortunately, not included amongst the notifiable diseases in this district.

The birth-rate for 1892 was 25·4 per 1,000, corresponding exactly with that of the previous year.

The district infectious hospital, which was opened in 1883, is an unpretentious building, and inexpensive both in construction and cost of maintenance. As many rural sanitary districts are still without any accommodation of this kind, a short description will specially interest our country readers. It is a wooden building, situated at an isolated spot about one mile from the union workhouse, and near the centre of the district. It comprises two wards, each about 24 feet square by 17 feet in height. At the end of each ward there is a closet and lavatory, and between the wards are placed the nurses' room, 18 feet by 12 feet, a bath-room, and a washing-up room. Adjacent to the building, and connected with it by a covered way, there is a cottage for the caretaker and his wife; the latter is capable of nursing in simple cases, but trained nurses are engaged from time to time as they are required. In connection with the hospital there are an ambulance and a disinfecting chamber. The use of the isolation hospital is limited to cases belonging to the district, a uniform charge of £4 being made when the patient's friends can afford to pay. During the last eight years, since the hospital was established, 42 cases have been received, and in all of these recovery took place. The total cost of maintenance, including medical attendance, nursing, caretaker, and repairs of structure, has averaged considerably less than £100 per annum, showing how much good may be done at a very moderate outlay. Suppose, for instance, that the ten cases of scarlet fever,

which could only be isolated by removal to the infectious hospital last year, had been left at their homes to spread the disease in their respective localities, would the public loss resulting from various outbreaks thus nipped in the bud have been anything near so little as the small total cost incurred in the hospital maintenance?

As regards water supply, the whole of the Chigwell division is supplied by the East London Water Company, and parts of the Epping and Harlow divisions derive their supply (which is constant) from the Herts and Essex Company; this company has an excellent and practically inexhaustible supply from a well sunk into the chalk at Sawbridgeworth. But many villages, hamlets, and scattered houses are dependent upon surface wells and ponds.

Dr. Taylor reports as follows:—"The water from these wells has repeatedly been analysed, with the invariable result that it has been found to be contaminated with organic matter;" and he gives some analyses made by the county analyst of samples of water taken from shallow wells of a dangerously polluted character.

Each of the three registration divisions of the district has public sewerage works; but in outlying parts the cesspool system prevails, with the consequent contamination of the ditches and watercourses in the neighbourhood. Properly constructed and covered ash-pits are too often the exception, and Dr. Taylor points out a fact which seems to be overlooked, viz.—that the Public Health Act, Sect. 35, requires all newly-erected houses to be provided with suitable ash-pits.

From what Dr. Taylor says in different parts of his report, he is evidently bent on urging upon the sanitary authority the necessity of setting the district in thorough order, so that should cholera effect a settlement in this country this summer, as is anticipated, the district shall be in a satisfactory condition for coping with any outbreak that may occur.

During the past twelve months a good number of houses have been connected with the public sewers, a step which implies the discontinuance of a corresponding number of cesspools, as well as old drains; numerous inspections, house-to-house or special, have been made; many dilapidated and insanitary houses have been either closed or repaired and made habitable; and an immense variety of other sanitary improvements have been effected, as shown by the statement of the sanitary inspector, Mr. J. H. Bell.

BEAUTY: HOW TO PRESERVE IT.

By Mrs. WARNER SNOAD.

It will be observed that I do not say: Beauty, and How to Acquire it. I do not much believe in acquiring beauty, but I do believe strongly in keeping as long as possible the good looks with which Nature has endowed most of us. Many a lovely complexion has been ruined, many a fine head of hair spoiled, many a cheek faded by want of a little knowledge of the simplest rules of hygiene and physiology. "Please do not preach," says someone, "get to the point." To the point, then. Complexion first.

Many who write upon beauty, and who claim for themselves some degree of authority, advise washing the face very little, and some even advocate never washing at all. Apart from its nastiness, such advice is foolish and ignorant in the extreme, and to most skins would be a fruitful source of blackheads, acne, and every other ill which complexions are heir to. My counsel, and it will be found sound, is, wash very thoroughly, but not too often. Bathe the face with a soft sponge for ten minutes every night and five or ten every morning, sponging in an upward direction. Use *soft* water (filtered rain water if possible); failing that, hard water well boiled (a little borax helps to soften the water, and for some skins Maignen's Anti-Calcaire is as balm in Gilead), and dry gently with a soft towel. Do not rub hard; this roughens the skin, but now and then at the night toilet use Pears' unscented soap (which must be washed off very thoroughly), and massage gently with one of Bailey's little rubber toilet brushes. Before the age of twenty-five the water should be hot, for in youth the skin is greasy, but as the age of thirty looms upon the horizon, tepid water is best, or even cold, if it can be borne without headache, as it tonifies the skin and prevents wrinkles. After washing at night, some simple unguent should be rubbed all over the face and throat, using very little grease, and working it well in with upward strokes. An excellent lotion for roughness in cool or cold weather is:—

3 oz. rose water; 1 oz. glycerine; 10 drops of carbolic acid. Mix. To be rubbed into the skin after washing and before drying.

For blackheads, acne, &c., bathe in very hot water and dab on the following at night:—

Precipitated sulphur, 1 drachm; rectified spirit, 1 oz. Shake well before using.

For red, hard pimples, zinc ointment used *freely* is a simple remedy; and dry, wrinkly skins past their first youth will be much improved by a little Lanoline, say twice or three times a week. Very little should be used, not enough to cause greasiness.

To keep hands soft and white, the great secret is always to *dry them thoroughly* with a soft towel, and for winter use there is no better unguent than 2 oz. of almond or olive oil, with enough shred spermaceti to make a firm ointment. Melt together on the hob, and stir till cold. Apply freely at night. The late Dr. Anna Kingsford prescribed the following lotion for whitening the hands and arms. I have not tried it personally:—

Powdered borax	...	...	...	3 drachms.
Glycerine	...	...	...	$\frac{3}{4}$ oz.
Elder Flower water	...	...	...	12 oz.

A little lemon juice applied to the nails after washing keeps them in nice condition, and prevents the skins growing over the nail. My doctor advocates a drop or two of pure glycerine rubbed over the hands *after* washing, and *before* drying. I have not tried it, but I believe it is a plan worth following.

Freckles are a terrible disfigurement, and the fairest skins generally freckle worst. Sir Erasmus Wilson's prescription would be useful for some, and it is as efficacious as anything I know:—

Elder Flower ointment	...	...	...	1 oz.
Sulphate of zinc	...	...	...	20 grains.

Mix well, and rub into the skin at night. In the morning wash off with soap and water, and apply the following lotion:—

Infusion of roses	...	...	...	$\frac{1}{2}$ a pint.
Citric acid	...	...	...	30 grains.

Should it cause any irritation, a little almond emulsion soon puts that right.

Here is an exquisite cold cream:—

Pure white wax	...	...	...	1 oz.
Spermaceti	...	...	...	2 oz.
Almond oil	...	...	...	Half a pint.

Melt together in an earthen pot, and add glycerine 3oz., with otto of roses 12 drops. Stir patiently till cold with a bone or ivory paper-knife. It takes a good hour's stirring.

For the lips cocoa butter is frequently recommended; but, for my own part, I have never used anything but pure glycerine, and never had a cracked lip in my life.

Treatment of the hair requires an article almost to itself, but the following prescription (Sir E. Wilson's)

may be useful when the hair is falling off from constitutional weakness, or in spring and autumn:—

Eau de Cologne	...	...	...	8 oz.
Tincture of cantharides	...	...	...	1 oz.
Oil of English lavender	...	...	...	$\frac{1}{2}$ drachm.
Oil of rosemary	...	...	...	$\frac{1}{2}$ drachm.

Brush the scalp till it glows, and then rub in the lotion.

Do not wash the hair often; it causes greyness. For this, shampoo may be used occasionally:—

Yolk of one egg;
One pint of rain water;
One ounce of rosemary spirit.

Beat well together, and use warm. There is no better application for general use than castor oil—a very little well rubbed into the roots with the fingers.

NOTE.—Very little oil, and very much rubbing.

The following is a good wash for fair hair:—

One ounce of salts of tartar;
One quart of water;
Juice of three lemons.

For inflamed eyes go to a doctor; and, oh! never let the Belladonna fiend tempt you to blindness, with the delusive notion that by the use of that dangerous drug the brilliancy of the eye may be heightened.

But, above all, avoid ill temper, tight stays, tight boots, and indigestion, which last would make Venus herself hideous in a year. Remember health and beauty are inseparably connected, and, although it is possible to be healthy without being beautiful, it is not possible to be beautiful without being healthy. Live, therefore, on simple, easily assimilated food, bathe frequently, take plenty of exercise, plenty of rest, plenty of fresh air, and, if you can, take life easily. Perhaps this last is the keynote of the whole secret of preserving beauty. I do not say that the prescription is easily made up.

Frauds in Food.—The commercial roguery in America which culminated in the manufacture of wooden hams and wooden nutmegs, cunningly made to imitate externally the real article, is not altogether without its counterpart in this country. A few days ago two men, Edward Jackson and Jack Cummings—names probably as false as the stuff they sold—were charged at the Wrexham Police Court with obtaining money by false pretences. The *modus operandi* was as simple as their dupes must have been. Having a quantity of tea-papers with the name of a well-known firm printed on them, they filled them with sawdust and then proceeded to sell the packets at cottages and isolated houses at the tempting rate of 1s. per pound. The magistrate remanded the prisoners for further inquiries.

PATENT MEDICINES.*

By the EDITOR.

NO. I.—PATENT MEDICINES ; PATENT MEDICINE LAW ;
MATTEI'S ELECTRO-HOMOEOPATHIC REMEDIES."To quack of Universal cures."—*Hudibras*.

FOR the sake of realising an annual sum of money—about £200,000—the British Government perpetrates a gross wrong on the community by giving a fictitious value and importance to the myriad quack remedies which are sold throughout the country. We refer, of course, to the amount raised by issuing Government Stamps for articles of this class, designated as Patent Medicines ; but, as we are in the habit of calling a spade a spade, we prefer to use the shorter name. The injury done to the community by this system of protecting quack medicines is incalculable. "Oh !" say the artisan, the small tradesman's wife, and many others in a higher position in society, "this must be a good remedy, it is protected by Royal Letters Patent." And so they go on, swallowing the bait as well as the physic, while the proprietor reaps a golden harvest. Government officials are always slow in making any changes involving them in additional trouble or new arrangements ; and, consequently, succeeding Chancellors of the Exchequer leave the question of the Patent Medicine Stamp alone. Of late years there has been—and very properly too—considerable public agitation concerning the adulteration of articles of food and drink, and it has been enacted that various admixtures of this character can only be sold with a distinctive label showing their composition. But there is no provision of this nature on behalf of the purchasers of quack medicines, for which the term "Patent" is a misnomer and also misleading, as the only protection afforded by the Government stamp is to the manufacturer of the nostrum, all information concerning the ingredients that enter into its composition being withheld.

Patents for new and useful inventions carry with them the sole right of making, using, or selling such inventions for a limited period only, namely, fourteen years, and before they can be obtained the person

seeking the patent must deposit at the Patent Office a description of the invention. Moreover, he has to make large and frequent payments ; otherwise the payment lapses. In the case of "Patent" medicines, nothing is required by way of proving either novelty or utility, while the composition remains a mystery. All that the manufacturer has to do is to pay for a given number of stamps, only three-halfpence each, and he can dose as many people as he can induce to buy the stuff with the most noxious drugs, or he can make a pile of money by selling coloured water, flour, or any other commodity, very cheap when purchased in bulk, and capable of being disguised in appearance or taste before it is passed on to the consumer in smaller quantities.

In the interests of public health, and having regard to the fact that HYGIENE has a wide circulation amongst families, we think it high time to prick the windbag of quackery by calling in the assistance of able analysts, in order that we may publish in our columns the reports upon the ascertained composition of different vaunted patent medicines.

A controversy was for some time carried on in one of our contemporaries, the *National Review*, concerning the "Electrical Remedies" introduced by an Italian Count. This discussion would certainly have terminated at an earlier stage had it then occurred to Dr. Herbert Snow, one of the medical staff of the Cancer Hospital at Brompton, to submit samples of Mattei's "Electrical Remedies" to a competent analyst. He did so, however, and the subjoined report made by the well-known chemical authority, Mr. A. W. Stokes, is worthy of study.

Analytical Laboratory, Vestry Hall,
Paddington Green, W.,

October 21, 1890.

Dear Sir,—On October 2nd I received from you three small bottles bearing the Government patent medicine stamp, each securely sealed with a wax, unbroken, seal of a castle on a rock. I have now carefully examined these chemically, physically, and microscopically, and I find as follows:—

They were labelled "Elettricità Bianca," "Elettricità Verde," and "Elettricità Rossa."

To find if they possessed any special magnetic properties, they were placed singly in thin glass tubes ; these tubes were suspended by silk filaments. Under such circumstances an electrical body would point one end to the north, and the other end to the south. Not one of these came to rest in such a position ; neither were any of them attracted by a magnet, as a magnetic body would be. Hence they

* Some of the articles constituting this series have already appeared in HYGIENE when published as a monthly magazine, and reprinted in two volumes. But as one of these—Vol. I.—is out of print, we propose, at the request of many readers, to commence a new series, as much of the matter will doubtless be fresh to the great majority of the readers of HYGIENE in its altered form. New reports and analyses will appear from time to time.

certainly are not magnetic. Other tests showed that they were not electrical.

To delicate test-paper they were perfectly neutral. Vegetable extracts are usually either alkaline or acid; even if neutral when fresh, they speedily change.

They had the following characters :—

			Electricità Bianca. (White Electricity)	Electricità Verde. (Green Electricity)	Electricità Rossa. (Red Electricity)
Colour	...	...	None	None	None
Odour	...	...	None	None	None
Taste	...	...	None	None	None
Polarity	...	...	None	None	None
Specific gravity (distilled water = 1),	...	...	1'0006	1'0002	1'0002
Solid matter in 100 parts	...	...	0'01	0'01	0'01
Metals*	...	...	None	None	None

* By metals is meant any foreign to water, or any such as are used medicinally.

Alkaloids None None None

The microscope showed an absence of any floating particles or sediments such as are usually present in vegetable extracts.

There is but one substance which possesses all the above qualities—that is *water*.

None of these fluids differ at all from water in any of their properties.—Yours faithfully,

ALF. W. STOKES, F.C.S., F.I.C.,

Public Analyst to Paddington, Bethnal Green,
and St. Luke's, Gas Examiner to the
London County Council.

The analysis speaks fully for itself. The Count has "beaten the record" in producing an article absolutely negative in its character; and there can be no other feeling than one of indignation when we think of the poor creatures who have been deluded into the use of the Count's specifics—white, green, and red. But even in description of colour the Count has broken faith with his credulous customers; for, according to Mr. Stokes, the green and the red electricities are as devoid of colour as the white. Possibly the green may have been so named out of delicate compliment to the Count's admirers, while the absence of coloration may be intended to heighten the joke. If the Count has been oblivious as regards the colour, he has not forgotten the charge; for these *precious* electric remedies, which, according to the Count's dupes, will, when administered in drops, cure cataract, mend broken bones, and remedy every other ill to which human nature is liable, are sold at the rate of 3s. 9d. for a small phial containing three-fourths of an ounce. As soon as the money market has recovered from its low, unspeculative condition, we should almost

expect to see in the financial papers an advertisement worded as follows :—

"Wanted, a few persons to join a syndicate for purchasing water at 1s. per 1,000 gallons, and retailing it at 5s. an ounce!"

REVIEWS AND NOTICES OF BOOKS.

OUR VIANDS : Whence they Come and How they are Cooked. By Anne Walbank Buckland. Crown 8vo., 308 pages. London : Ward and Downey.

Miss Buckland has brought within the moderate limits of this book a very large amount of interesting information upon a subject of universal importance. Everyone must eat to live; that goes without saying, and there must be few persons who do not feel an interest in the sources whence their food is derived, as well as in the mode of preparation. For, although, in the remote epochs of the world's existence, primitive man was content to eat such substances as he was able to obtain in a raw condition (he being then little removed above the brute creation), he was not slow in discovering that cooking in some form or other not only enhanced the flavour, but increased the nutrient properties, of various articles of diet. Our far-off ancestors the Ancient Britons must have felt solicitous as to the tenderness of the acorns and the succulence of the roots which they literally "grubbed" for their daily meal; but what a thrill of pleasure they must have experienced when some savage Soyer amongst them discovered the merits of roasting—a vast improvement, doubtless, upon the monotonous repetition of the raw article.

Baking, roasting, or broiling must, of necessity, have long preceded the other method of common cooking—namely, boiling, as this last-named would require for its performance some kind of receptacle in which the cooking could be carried on. Probably the first hint was derived from placing food in the hot natural water of the boiling springs or geysers in various localities. The most primitive mode of boiling seems to have been that still practised amongst uncivilised communities, of taking the hide of the animal and tying it up like a bag, with portions of flesh and some water, then dropping in stones, heated in an ember fire to a white heat, until the meat is cooked. As for roasting, the suggestion may have come from the altered state and taste of articles exposed to the heat of the sun, in hot countries; but, at any rate, when the savage had once found out how to "make fire" by rubbing two dried pieces of wood together, or by obtaining sparks

by striking flints, and thus igniting dried grass or leaves, he would probably soon utilise the idea for cooking his food in the embers of burning wood, or suspended by a tripod of sticks over the flame; and, as Miss Buckland observes, "it is doubtful whether meat thus cooked is not of finer flavour than that which we dry up in ovens or boil to death" (query, shreds) "in ordinary saucepans."

The first part of "Viands" deals with bread-stuffs, and the different preparations of wheat, barley, rye, oats, and other grain. The earliest cultivated kinds of grain were the first three named, being of great antiquity. Maize, or Indian corn, is usually regarded as not known until the discovery of America; but it is reported to have been found growing at the Cape at the time of the discovery of that part of Africa by the Portuguese, and other circumstances are adduced in proof of its having been known at an earlier period in parts of Asia. Millet is a grain which has been grown from time immemorial in Egypt—under the name of "Dourah" it constitutes the staple food of the native population—and throughout the African continent, three harvests being obtained annually. It is well adapted to countries where there is little rainfall, or where the soil is too sandy or poor for the cultivation of wheat or barley. Rye-bread is open to objection on account of its dark colour, but when newly made it is very nutritious and satisfying. Those of our readers who have travelled through Norway will have tasted the peculiar rye-bread made there, and called *Fladbrød*, i.e., flat-bread or cake. It is prepared only twice a year, and after it has been baked is stored in stacks eight feet high. Coarse fare as this is, we have eaten it accompanied by Norwegian cheese with relish after a long walk, and—saving clause!—when nothing better has been obtainable. This reminds us of the anecdote told in another part of her book by Miss Buckland of the historical black broth, the national dish of the Spartans. Dionysius, being desirous of trying it, had some carefully made by a Lacedæmonian slave; he tasted it, then threw it from him in disgust, angrily demanding whether it was possible that that could be the broth of which the Spartans were so fond. "Yes," replied the slave, "but it lacks one essential, that of vigorous exercise before partaking of it."

Few proverbs are truer than that "hunger is the best sauce," as in this instance; given a healthy man, with a healthy, strong appetite induced by physical exertion, and there are few articles of food which will come amiss to him. Yet, though man is an omnivorous animal, and feeds for the most part on

whatever he can get, the taste for condiments, wherewith to create more relish for his food, is practically universal. The most common condiment is salt, which, even amongst barbarous tribes, is used instinctively, just as in the case of many animals which will lick rock salt greedily if within their reach; and the reason for this may be found in the fact that it is essential to the animal organism for physiological purposes. The chlorine in salt, chloride of sodium, assists in forming the hydrochloric acid of the gastric juice, while other chlorine combined with potassium exists in the red blood-corpuscles and in muscle-tissue; its sodium goes to form the soda salts found in the bile and the blood.

The chapter on condiments is not the least interesting one in a book full, as this under notice is, of information. Mustard, next to salt, is the most common condiment used in this country; it is of respectable antiquity. Shakespeare mentions it more than once in conjunction with roast beef, but it was probably used in his time in the form of a coarse powder, as it was not introduced in its present form until the early part of the last century, by a Mrs. Clement, of Durham; hence the origin of Durham mustard. Miss Buckland thinks that a return to the old custom of using the genuine seed coarsely pounded would be preferable to the frequently adulterated article now often placed on our tables,—an article which, by reason of its containing so many substitutes for the real thing (such as flour, turmeric, and capsicum), may be said to resemble Shakespeare's play of *Hamlet* with the omission of the chief character. French mustard, as is well known, differs in flavour from the English, the reason being that it is made with tarragon vinegar; tarragon is an aromatic plant (*Artemisia dracunculus*) of the same natural order as wormwood, southernwood, and other *compositæ*.

Throughout the East the condiment chiefly in use is the betel, a kind of pepper, the leaves of which, made into a sort of paste with quicklime, are chewed, causing the teeth to become black, and the gums and lips to assume a bright-red colour; instead of this discoloration of the teeth being regarded as objectionable, it is considered by the natives to add materially to the attractive charms of the women. A similar custom prevails in South America, where the leaves of the coca plant (not coça, as printed in Miss Buckland's book) are substituted for the betel, but mixed in the same manner with lime, and carried about in small fancy boxes for convenience.

Game, poultry, meat, fish, eggs, and dairy produce

have each a chapter devoted to them ; and many a useful hint or interesting bit of food-lore can be obtained from their perusal. The chapter on Unappreciated Trifles is particularly amusing, and includes all sorts and conditions of animals, from the lordly elephant, whose foot is esteemed by the natives of Africa and Asia as a *bonne bouche*, down to the lowly snail, which is a favourite dish in many parts of France and Italy, and is even eaten in some localities of England, chiefly, however, owing to the idea that snails have a curative property in the case of persons suffering from consumption. The Romans were especially fond of snails, as an article of diet, and, like their successors the Italians, had their snail-ponds, or enclosures, where they fattened them, bringing them to a large size by feeding them on meal boiled in wine. The Romans introduced a particular species of snail into Britain. We remember, some ten years ago, when we were on a visit to the late Rev. Mr. Reynardson, of Eastling, near Faversham, that he referred to this subject in conversation, and subsequently showed us some specimens of this kind, which are found in that locality, larger than and different in appearance from the ordinary English snail. We were content with discussing the snails from the historical point of view, without testing their gastronomic merits ; but we must confess to having tasted and enjoyed a certain unappreciated trifle which probably few of our readers have partaken of, namely, hedgehog. Far back in the "forties," in his happy schoolboy days, wandering about the Warwickshire lanes, whenever he had a holiday, the writer of this notice got acquainted with an encampment of gipsies, even to the extent of partaking of their hospitality, to which he was always welcome, as a sort of make-weight to the kindness shown to them by his father, who gave them medical comforts and other aid in time of trouble and distress. They were gipsies in those days, such as Borrow delighted to depict, and altogether unlike the miserable half costermonger, half cadger race one now comes across occasionally in country rambles, not one of whom has a drop of Romany blood in his veins, or can speak a word of the musical and mystical Romany language.

The way in which his gipsy friends cooked a hedgehog was as follows :—After carefully preparing it, they covered the dead animal (spikes and all) with a thick envelope of wet clay ; next they placed this clay ball in the midst of the embers of a wood-fire. After a time, when the hedgehog was cooked, the clay cracked in various directions, and the ball was removed from the embers. The clay covering was easily removed,

bringing away with it all the spikes and leaving only a delicate white ball of flesh, having a flavour between that of roast chicken and pork ; constituting, with brown bread and butter, a lettuce, and a "tot" of nut-brown ale, a meal fit for an epicure. Before any squeamish readers disparage this novel dish, we would ask them whether they have ever eaten the flesh of duck or pig, and to contrast the simple fare of the hedgehog, which subsists upon roots and insects, with the indiscriminate food of the other animals that we have named.

(To be continued in our next number).

BRITISH HEALTH RESORTS.

NO. I.—SWANAGE.

THIS watering-place, which is as yet not so well known as it deserves to be, is situated in the district known as the Isle of Purbeck, on the south coast of Dorset. Swanage Bay and its neighbour on the south side, Durlston Bay, are large sweeps cut out at the most southerly point of the great curve of the sea which forms Poole Bay and Christchurch (in the centre of which is Bournemouth).

Swanage is the chief town of the Purbeck Peninsula, and, like many another Dorset town, has a history of considerable antiquity. In the bay a hundred ships of the Danes were wrecked on the treacherous rocks off Peveril Point, and a great victory was won by Alfred a thousand years ago.

The town itself is a most interesting old place, and full of character ; it wanders along the high ground, which sweeps down to the bay in pleasant zig-zags and picturesque confusion. Its buildings have that delicate tint of tender grey which appears to give the finest harmony with the dark rich green of the grass-covered cliffs, and furnishes a striking contrast of colour with the sea, which here seems exceptionally sparkling and highly tinted as it rolls in over the yellowish-grey sands. These sands are a great attraction to the place, affording as they do the best of bathing, owing to their gentle slope to the sea. The bathing elicited the praise of Charles Kingsley (an admitted connoisseur of such matters), who wrote of Swanage :—"A pleasanter spot for summer sea-bathing is not to be found eastward of the Devon coast than Swanage."

It has other advantages ; by situation it seems specially favoured, as, at a fair distance from the town, the Purbeck Hills rise and surround it in a horseshoe, each point of the horseshoe ending in tall cliffs. This formation of hills fulfils a twofold purpose—it prevents

the prevalence of either land or sea fogs, which are an avowed frequent trouble of our southern English watering-places.

There are abundance of lodgings to suit all purses and capital hotel accommodation; some charming, bright streets of modern houses climb the steep hill which leads up from Swanage towards Durlston, and there is a great sense of airiness and cleanliness in this new part of the town, which commands a grand view of the bay.

It is impossible to think or write about Swanage without mentioning the large undertakings which are

has built an immense and massive structure, called Durlston Castle, which has been opened as a first-class restaurant. Underneath this, on a kind of platform approached by terraced walks, has been erected one of the most interesting objects in the south of England. It is a great globe, constructed of Portland stone, weighing forty tons, and 10 feet in diameter. On it, in bold relief, are carved the continents, oceans, rivers, mountains, &c., of the world, and at various places at a little distance are stone benches in the proper positions of the various points of the compass, which they indicate, and with the names of which they are



SWANAGE, AS SEEN FROM THE NORTH.

progressing on the south-west side of it. Mr. George Burt, a native, and now a resident of the town, who is as enterprising as he is wealthy, has bought a large tract of heathland running along the cliffs between Swanage and Durlston Head (which it includes), and has laid out miles of good broad roads, built more than ten miles of protective walls by the side of the cliffs, and, with admirable taste, planted millions of trees and shrubs in groups and belts; in fact, every preliminary has been carried out for founding a new watering-place here. At Durlston Head itself, some 200 feet above the sea, he

clearly marked. This original idea has been carried out with great perfection, and will form a memorial of the benefactor of the neighbourhood as enduring and peculiar as any monument of Egypt. From here well-made gravel walks lead down to the Caves of Tilly Whim, which are reached through a lofty tunnelled passage recently made and thrown open to the public by Mr. Burt.

The caves are in reality the former quarries for the famous stone of the neighbourhood; they are large, and quite sufficiently picturesque to justify their traditional

usage by smugglers. The rocky coast on to which they open is most magnificent with its stupendous masses of wild, bold rocks, whose grandeur is enhanced in a storm by the height to which the waves break over it. Above the caves is the Anvil Point Lighthouse, from which a notably fine sea view is obtained, including the Isle of Wight. The whole of the Durlston Bay scenery, onward to St. Alban's or Aldhelm's Head, is good, and the air is peculiarly fresh and bracing.

Besides these attractions, close to Swanage there are many others in the numerous excursions, which are both cheap and easy, in the vicinity; these comprise steam trips to Alum Bay, the Needles, and many other charming resorts in the Isle of Wight, Weymouth, Lulworth, and Boscombe. Bournemouth and Poole are easily accessible by water, and so well known from their varied sources of interest as to need naming only. Near also are Christchurch and Corfe Castle; the priory of the first-named place is, for beauty of architecture and position, unrivalled, lying as it does among exquisite meadows on the banks of the broadening Avon, a gem of ancient art set in a lovely pastoral landscape. Corfe Castle is only a quarter of an hour by rail from Swanage; it is a most extensive ruin of a singularly fine specimen of mediæval fortress and mansion, and has been rendered famous from its gallant defence by Lady Banks against the Parliamentary troops in the Civil War; her garrison was as low as five and never exceeded forty men.

A fine walk from Swanage is to the lovely village of Studland, from whence the best view may be obtained of that series of silvery, land-locked lagoons known as Poole Harbour, in the midst of which lies Branksea Island, with its crown of dark pine woods. The next station to Corfe Castle is Wareham, a most interesting old town, with a cincture of earth-works, considered unique.

In conclusion, it must be stated that this article, owing to limit of space, by no means professes to be either an exhaustive or complete catalogue of the numerous attractions of Swanage; its object has been merely to make it known as a charming and unspoilt spot in the midst of a truly interesting district. Those who desire further details will find much interesting information in an excellent guide-book to Swanage, published by Messrs. Everett, of Salisbury-square, London.

W. ARMSTRONG WILLIS.

The Cheapest Bread in England is at Spalding in Lincolnshire, where a contract has recently been entered into to supply the Guardians with bread at 2½d. the 4lb. loaf. In previous low contracts with the same baker the bread has always proved of excellent quality.

THE ANTI-ADULTERATION SOCIETY.

NOTWITHSTANDING the legislative measures which have been passed for the prevention of adulteration, the fact is well recognised by public analysts and others possessing special information that adulteration is as frequent as ever it was. This is due partly to the circumstance that the keenness of competition and the greed for excessive profits have exercised the ingenuity of dishonest manufacturers, and excited the rapacity of dishonest dealers to an extent never before practised; partly to the supineness of many sanitary authorities, who, although they go through the form of appointing public analysts, take good care—either by underpaying these officials, or by throwing every obstacle in the way of their carrying out their duties—to make such appointments next to valueless, so far as the public good is concerned; partly to the apathy of magistrates and justices of the peace, who, in very many instances, make the Adulteration of Food Act virtually a dead-letter by imposing, when they do inflict a penalty, such ridiculously low fines—very often a nominal shilling or half-crown—thus discouraging the officials appointed under the Acts, and encouraging the continuance of the most disgraceful tampering with articles of food and drink; and partly to the helplessness of the consumer, who does not know how to protect himself from systematic fraud and depreciation in the dietetic value of his daily food.

In the issue of *HYGIENE* for March we pointed out, as we have done many times before, that, however well-intended and excellently-framed an Act of Parliament may be, its public efficiency may be almost completely neutralised, either by its permissive clauses, by the indifference or covert prejudice of persons upon whom devolves the duty of enforcing it, or by the manner in which it is construed by judicial functionaries.

Our comments have aroused considerable attention and interest, and numerous subscribers and other friends have written to us on the subject, urging the formation of an association for the purpose of combating the glaring and increasing evil of adulteration—an evil from which everyone must more or less suffer, both in pocket and in health, whatever his or her position in life may be. We cordially agree with our correspondents in the opinion that the most practical, most ready, and most sensible way of putting down adulteration is by means of a properly-constituted association, under the management of a competent and influential committee elected by the members. A temporary committee is in course of formation, and we have been requested to state that any communications can be addressed to the Secretary,

Anti-Adulteration Society, 22, Henrietta-street, Covent Garden, W.C., who will be pleased to receive the names of all persons favourable to this movement, and to answer all inquiries.

AIR AND LIGHT.—A DOCTOR'S STORY.

By W. M. CARLETON.

THE following humorous verses, which appeared in the *Sanitarian* of New York, express in a clear and racy manner one of the greatest difficulties with which medical practitioners have to contend, namely, the fondness of their patients for swallowing physic, while carelessly or ignorantly neglecting the simplest rules of hygiene:—

I.

Good folks ever will have their way,
Good folks ever for it must pay.
But we, who are here and everywhere,
The burden of their faults must bear.
We must shoulder others' shame,
Fight their follies and take their blame;
Purge the body and humour the mind,
Doctor the eyes when the soul is blind;
Build the column of health erect
On the quicksands of neglect;
Always shouldering others' shame,
Bearing their faults and taking the blame.

II.

Deacon Rogers, he came to me;
"Wife is a-going to die," said he;
"Doctors great and doctors small
Haven't improved her any at all.
"Physic and blister, powders and pills,
"And nothing sure but the doctors' bills!
"Twenty old women, with remedies new,
"Bother my wife the whole day through;
"Sweet as honey, or bitter as gall,—
"Poor old woman, she takes 'em all;
"Sour or sweet, whate'er they choose,
"Poor old woman, she daren't refuse.
"So she pleases whoever may call,
"And death is suited the best of all.
"Physic and blister, powder and pill,
"Bound to conquer, and sure to kill!"

III.

Mrs. Rogers lay in her bed,
Bandaged and blistered from foot to head;
Bandaged and blistered from head to toe,
Mrs. Rogers was very low.
Bottle and saucer, spoon and cup,
On the table stood bravely up;
Physic of high and low degree,
Calomel, catnip,* boneset† tea.
Everything a body could bear,
Excepting light and water and air.

IV.

I opened the blinds; the day was bright,
And God gave Mrs. Rogers some light.
I opened the window; the day was fair,
And God gave Mrs. Rogers some air.
Bottles and blisters, powders and pills,
Catnip, boneset, syrup and squills;
Drugs and medicines, high and low,
I threw them as far as I could throw.
"What are you doing?" my patient cried;
"Frightening death," I coolly replied.
"You are crazy," a visitor said;
I flung a bottle at her head.

V.

Deacon Rogers, he came to me,
"Wife is a-comin' around," said he.
"I really think she'll worry through,
"She scolds me just as she used to do.
"All the people have poohed and slurred,
"All the neighbours have had their word;
"Twas better to perish, some of 'em say,
"Than be cured in such an irregular way."
"Your wife," said I, "had God's good care,
"And his remedies,—light and air.
"All of the doctors, beyond a doubt,
"Couldn't have cured Mrs. Rogers without."

VI.

The Deacon smiled and bowed his head:
"Then your bill is nothing," he said.
"God's be the glory, as you say!
"God bless you, doctor! good day, good day!"

VII.

If ever I doctor that woman again,
I'll give her medicines made by men!

LEAD-POISONING.

HAVING been much interested in the articles published from time to time on this subject in *HYGIENE*, I submit to its readers the two following cases of lead-poisoning, as remarkable instances of the subtle nature of its causation. Like arsenical poisoning, it happens in so many different ways that it is often exceedingly difficult to trace it to its source. Sometimes it originates in a leaden cistern or water-pipe, at other times in a pinch of snuff, or in a cosmetic; oftener in the unwashed hands of the mechanic who works in lead, and unwittingly conveys some particles of lead into his system at every meal. The two cases which I have referred to were, as will be seen, of a puzzling character.

One patient was a confectioner, to whom I was called in the night, owing to his suffering from lead-colic. When I told him that his illness was due to lead-poisoning, he was most incredulous on that point. However, a good dose of opium made him quiet for a time, and in the course of a week he had nearly

* A herb much in domestic use in the United States in the treatment of colds, indigestion, &c.

† A plant popularly supposed to possess tonic and diaphoretic properties.

recovered. I then asked him to show me what he did in his work, for he had asserted that not a particle of lead ever entered his premises in any way. When I went into the room I saw that he worked a pewter cylinder with both hands; it was called pewter, but in reality consisted almost entirely of lead, and thus the enigma was solved. By my advice he wrapped some flannel round the handles, and never touched the metal with his hands afterwards, and he has had no return of the lead-colic.

The second case, similar in some respects, came under my notice shortly afterwards. A healthy, muscular man, about forty-two years old, became my patient, with symptoms of lead-poisoning. When I told him the nature of his disorder, he said he had worked at the same place for nearly twenty years, that he never touched any lead, and he wound up by declaring that I must be in error. He was a "hammerman" at a large engineering establishment, and was employed in riveting iron plates for boilers; he further stated that he hardly ever touched metal of any kind, for his hammer was a long as well as a heavy one, which he wielded with great facility, being a very powerful man (formerly a prize-fighter). Notwithstanding all his denials, the symptoms of lead-poisoning were there, and all his arguments and contradictions failed to shake my faith in my diagnosis. I treated him from time to time for lead-poisoning for three years; during which period, when he got better, he returned to his work, subsequently presenting himself again at the hospital, suffering from the same symptoms. It occurred to me one day when I was driving past the factory where he was employed to call and inspect his mode of work. I found that what he called "priming" was laid on the two pieces of metal which had to be united, and the rivets being driven into it red-hot, a vapour escaped while the process of hammering was going on. That vapour turned out to be lead-vapour, given off through the contact of the hot iron with the priming, which, as a matter of fact, consisted of red lead. Eventually I sent him to Bath for the benefit of the waters, and he came back after a course of them improved, but nevertheless a martyr to his want of knowledge of hygiene, and his neglect of hygienic precautions.

M. D., CANTAB.

The Shone System of Sewerage has been sanctioned by the Bombay authorities for the drainage of Colaba. Karachi is also to give the same system a trial. Rangoon, another Eastern city, has for some time been drained on this system.

DIETETIC NOTICES.

COCOA is an article of such universal consumption, as compared with what it was not many years ago, that the question of its purity has become one of considerable importance, on both dietetic and economic grounds. Unfortunately, cocoas of various makes, especially foreign, have found their way largely into the market, partly by means of misleading assertions as to their quality, partly through the manufacturers being able, by reason of inferior value, to supply shopkeepers at a rate affording a somewhat greater margin of profit than genuine cocoas would do. The public should therefore be careful not to buy any other kinds than those which can be relied on for purity and continued excellence. We recently had occasion to examine a sample of Messrs. J. S. Fry and Sons' "Pure Concentrated Cocoa." We found it merited the name just as it did some years ago, when we examined a similar specimen. Its aroma, flavour, purity, and strength keep it prominently in the front rank, and render it fully worthy of the many high encomiums which have been passed upon it.

NEWS AND NOTES.

Banstead Downs.—There is a fair prospect of this beautiful common, comprising 1,300 acres of delightful upland, covered with gorse and heather, and situated only about a dozen miles from the metropolis, being secured to the public for ever. Adjacent landowners have long cast a hungry eye over this open space, and argued lately, through counsel, before the Bills Committee of the House of Commons, that it was not required for purposes of recreation and exercise, as other similar spaces existed in the immediate locality. This sort of reasoning (if it may be designated by that name), and the apathy or helplessness of the people, must be held responsible for the shrinkage of Epping Forest to one-fourth of its original dimensions, and for the entire loss to the public of many a piece of so-called waste land which would now be of immense value to the teeming population of the towns that have sprung up near, or extended to, where this waste land formerly existed.

"It is a sin in man or woman
To steal a goose from off the common;
But he doth sin without excuse
Who steals the common from the goose."

* * *

Proposed Fever Hospital at Tooting Bec.—The Local Government Board have refused to sanction this scheme. Seeing that the proposal was to place an infectious disease hospital adjacent to one of the chief recreation grounds of South London, while eligible sites are to be obtained at a less cost not far off, the defeat of the Metropolitan Asylums Board scheme is at the same time a boon and a relief not only to the locality, but to Londoners generally.

Precautions against Cholera.—A deputation from the Conference of Port Sanitary Authorities was received lately at the House of Commons by the Chancellor of the Exchequer, who was accompanied by Sir Walter Foster, Parliamentary Secretary of the Local Government Board. Several members of Parliament were present, including Mr. Brand, Mr. Gourley, Sir Joseph Pease, Mr. Heneage, Mr. Dalziel, Col. Hill, and Mr. T. P. O'Connor. The object of the deputation was to induce the Government to grant some assistance to the Port Sanitary Authorities in carrying out measures for preventing the introduction of cholera into this country. Sir Joseph Pease advocated the views of the deputation that the expenses of those authorities, so far as they were special in preventing the importation of cholera into Great Britain, should be borne by the National Exchequer, and he was supported by Mr. Heneage, Mr. Crawley of Southampton, Alderman Spence, chairman of the River Tyne Port Sanitary Authority, and the Mayor of Swansea. Sir William Harcourt, in replying, stated his belief that the Port Sanitary Authorities had unquestionably done their duty well last year in protecting this country from cholera under the directions of the Local Government Board, but that there was no precedent for granting the relief sought by the deputation. Quite apart from the question of amount, the introduction of a new principle of public charge was one of the most serious questions that possibly could come up for consideration. What was the fact of the cholera in relation to ports? It was that shipping from foreign ports was the great and profitable trade of those ports. It became under certain circumstances a risky trade which under special peculiar circumstances (which happily did not often occur) involved some risk of contagion and contamination through a particular town to districts outside. That was the position of the matter with reference to cholera. The trade of these seaport towns was one from which they derived the whole of the advantage which did not belong to inland towns. This foreign trade was the foundation of their prosperity. Well, a seaport town was from particular circumstances for a few weeks carrying on a risky trade, and the Government were asked to take precautions against those risks which their trade had exposed them to for a time. Let them just think of admitting such a principle as that and applying it to the United Kingdom. Why, the limitations of expense were not to be calculated. He could form no conception of the amount of public charge that would be involved from the admission of such a principle as that. He confessed that he was staggered at the propounding of a principle of which the extent was so large, and of which the cost might be absolutely unlimited. They were trying to establish a precedent for throwing local burdens upon the public revenue to an extent of the most dangerous magnitude. Those were the considerations which weighed with him in this matter. He did not say that under extraordinary circumstances there might not be reasons

for departure from what he must describe as sound principles of finance. He was afraid he must say that he could see no sound principle in placing upon the public purse the burden which really belonged to the locality. There was one exception to this, namely, that any incidental assistance the local government could give with reference to providing hulks they would readily give. For instance, Sir Walter Foster knew that the Customs had rendered certain assistance on those occasions in conveying medical officers and relieving the expenditure in that way, and he hoped that some understanding would be come to with the Customs in London in the matter. Mr. Heneage remarked that more than half of the special expenditure which had been referred to was incurred for hulks and the hiring of tugs. Sir William Harcourt, in conclusion, said that he should be glad to consider any assistance of that kind, and to give any incidental help, short of admitting the principle of general liability.

* * *

Atmospheric Electricity.—At a recent meeting of the Royal Meteorological Society a lecture was delivered by Mr. Shelford Bidwell, F.R.S., entitled "Some Meteorological Problems," chiefly dealing with the subject of atmospheric electricity. Commencing with the statement that the real origin of atmospheric electricity is still involved in much obscurity, the lecturer remarked that two factors were undoubtedly concerned, namely, evaporation and friction due to the passage of air waves over the surface of the earth. Several excellent photographs of lightning flashes were exhibited, and the spark from a powerful electrical machine being afterwards projected upon the screen, it was seen that the line pursued by the fluid assumed precisely the same form, the path of a lightning flash being invariably curved and often very tortuous. It was stated that the real duration of a lightning flash is never less than 1-10,000th part of a second. The lecturer drew attention to a recent statement by Dr. Oliver Lodge to the effect that a lightning conductor, however perfect in construction, does not always afford complete immunity from danger. If a low-lying cloud is surcharged by electricity from a higher and larger cloud, the former must precipitate the superabundant fluid, and in such cases no conductor will ensure perfect safety. Referring to the dense darkness of a thundercloud, it was seen that this was due entirely to the electrification of the minute water particles. Atoms of dust were said to be responsible for the blue colour of the sky, and without these the heavens would present to our view a dense pall of inky blackness.

* * *

The Infectious Hospitals Bill, now before Parliament, has for its object to facilitate the provision of isolation hospitals by enabling county councils to combine parishes or rural sanitary authorities in the erection of such hospitals, such expense to be borne by the community benefited, as undoubtedly it would be, seeing that isolation is the most efficient protection against the spread of infectious disease.

The Rivers Pollution Prevention Bill, read a second time in the House of Lords, was introduced by Lord Monkswell on behalf of the Local Government Board for the purpose of remedying a practical defect in the working of the Rivers Pollution Act of 1876, Section 3 of which made it an offence for a local authority to permit sewage to flow into a stream, and it was the obvious intention of the Act that the clause should apply to sewers used at the date of the passing of the Act. A decision had, however, been given under the Public Health Act, 1885, in which, the case being also one of sewage, it was held that the sewer having been constructed previous to the passing of that Act, and the local authority having done nothing actively to pollute the stream, a conviction could not ensue. The law officers of the Crown had advised the Local Government Board that this decision extended also to the Rivers Pollution Act, and this Bill was intended to meet the difficulty which had thus arisen and to stop the pollution of streams by sewers made before the year 1876.

* *

Purification of Air.—At a recent meeting of the Society of Arts, Mr. William Key read a paper on the purification of the air supply of public buildings and dwelling-houses. The apparatus which has been designed for filtering and washing the air consists of a screen formed by stretching some thousands of cords of suitable material from the ceiling to the floor. These cords are arranged close to each other, and are interlaced horizontally with copper wires drawn so tight as to give to the flat surface of the screen the appearance of coarse cloth. Water trickling slowly down the cords washes all impurities out of the air, which passes into the building through the minute orifices of the screen. Experiments conducted during the existence of a dense fog showed that not a particle of the fog passed through the screen, the air thus filtered being described as "bright and clear, perfectly sweet and free from odour." In the case of dust particles the result was not so completely satisfactory.

* *

Cider-Champagne.—*Good Words* gives the following amusing and suggestive anecdote by Mr. Baring Gould. A gentleman applied not long since to a large apple-orchard farmer in the West of England for a hogshead or two of his sparkling cider. The farmer replied that he was very sorry not to be able to accommodate him as in previous years, but a certain London firm had taken his whole year's "pounding." He gave the name of the firm, and assured his former customer that he could get the cider from that house. The gentleman applied, and received the answer: "Sir,—We are not cider merchants. You have made some mistake. We are a firm of champagne-importing merchants from the celebrated vineyards of MM. So-and-so."

Another Open Space for London, in the heart of the metropolis, will soon be available for exercise and recreation through the efforts of the London County Council. We refer to Lincoln's Inn Fields, in connection with which we have for years past advocated the public rights to admission. Originally an open space, the Fields, as they then were, were enclosed in the last century under the excuse that bad characters frequented them. An agreement has been come to between the London County Council and the benchers of Lincoln's Inn, the freeholders of adjacent property, who have hitherto done all in their power to prevent this important public improvement, that the latter body shall withdraw all opposition to the Council's Open Spaces Bill.

* *

Virchow on Cremation.—This well-known Continental sanitarian has given his opinion in the following incontrovertible statement:—"In times of serious epidemic, cremation should be recognised as absolutely essential. According to my experience a very high degree of heat, even when still below the burning point, has proved effectual for the destruction of micro-organisms and infection-germs; while actual burning guarantees an incomparably greater security. For towns, therefore, the practice of cremation should certainly be strongly advocated on the ground that burials in churchyards that are often in the immediate vicinity of inhabited districts always give rise to the apprehension that they may prove a source of danger to persons who live in the neighbourhood."

* *

Reckless Cyclists, though constituting, we are pleased to say, only a small percentage of the entire number, have brought a good deal of discredit upon "wheeling" by the casualties arising from their careless indifference to the safety of other persons using the highway. The Marquis of Granby has taken the trouble, in the public interest, to tabulate a series of cases of this kind in which the cycling authors of the mischief have made good their escape from the consequences of their recklessness; and he proposes the very sensible scheme of registration of bicycles and tricycles, such as has been in operation for a considerable period in Paris.

* *

Looking Ahead.—The Yosemite National Park, the greatest forest reserve ever known, has been enlarged as the result of one of the latest acts of General Harrison before leaving the Presidential chair. The addition comprises more than 4,000,000 acres, or 6,000 square miles, lying south of the park, and containing one of the most beautiful portions of the Sierra Nevada Mountains. The object of this and similar additions to the United States reserves is to counteract the enormous and wasteful destruction of the American forests which is constantly going on.

"HYGIENE,"

A SANITARY AND SOCIAL JOURNAL.

ESTABLISHED IN 1887. PRICE—ONE PENNY, WEEKLY.

The following are some of the hundreds of Favourable Notices which have been received:—

From the Right Hon. W. E. GLADSTONE, M.P.

Facsimile.

*Sir, I beg to thank you for your
courteous gift and note. A
glance at the volume shows
me that it must contain
much matter worthy of
attention. You very ob.
t faithfully
W. E. Gladstone*

"The editor of *HYGIENE* has for some time past devoted himself to the task of exposing medical quackery. We hope that all our readers will make it their business to acquaint themselves with its contents."—*British Medical Journal*.

"Every medical man should make himself acquainted with the articles on patent medicines in *HYGIENE*, and make them generally known also amongst his patients."—*Provincial Medical Journal*.

"The editor of *HYGIENE* has issued a series of articles exposing the pretensions of popular patent remedies. . . . He has furnished thinking people with weighty reasons."—*Saturday Review*.

"*HYGIENE* is a sanitary and social periodical devoted to the consideration of matters affecting the health of the people. The number before us contains interesting papers of great value."—*The Metropolitan*.

"*HYGIENE* contains useful articles, papers, and lectures on matters which it is to the interest of everyone to know."—*Reading Mercury*.

"This is an excellent journal, affording much useful information concerning foods, beverages, health resorts, domestic medicine and sanitation, and kindred matters. The increased interest now taken in sanitary and social science has created a demand for a journal of this kind, and *HYGIENE* cannot fail to do much good."—*Southampton Times*.

"*HYGIENE* is a sanitary and social journal of considerable practical merit, and treats of a variety of important matters affecting the health and home."—*Lincolnshire Free Press*.

"This periodical is devoted to inquiry into all matters of sanitary and social importance, affecting the health of the individual and the community at large. The articles are excellent."—*Ashton-under-Lyne Reporter*.

"The title of this periodical explains its object and contents; is full of information."—*Birmingham Chronicle*.

"*HYGIENE* is a valuable periodical on all subjects pertaining to health."—*Huddersfield Examiner*.

"That very useful and instructive sanitary and social journal entitled *HYGIENE*."—*Kingston and Surbiton News*.

"*HYGIENE* is a journal calculated to do good service to the community by spreading a knowledge of the conditions necessary to the maintenance of health. It is excellently conducted, while the articles are well written and entertaining."—*Southampton News*.

"*HYGIENE* contains sensibly-written articles."—*Keighley News*.

"*HYGIENE* is a very useful periodical, and as such should be appreciated by the heads of families and others."—*The Queen*.

"*HYGIENE* is a sanitary and social periodical which is well edited, and contains much that women, on private and social grounds, are interested in. We repeat our previous suggestions as to its value in every well-ordered family."—*The Lady's Newspaper*.

"This is a periodical which should be widely read, since the subject of which it treats interests everyone, no matter in what position. The style is plain and attractive; the information and the editing are judicious."—*The Local Government Chronicle*.

"*HYGIENE* should be read by all who are desirous of becoming acquainted with the laws governing health and life. Its articles combine instruction with interest, and are written by men who are thoroughly competent to treat of the subjects on which they write."—*Hampshire Express*.

"*HYGIENE* in the present number gives, in the first place, a biography of Sir Edwin Chadwick, described as the father of sanitary science. Valuable precautions against epidemic disease are also given; and there are various other articles of an instructive and interesting character."—*Rosendale Gazette*.

"The contents of the current number of this sanitary and social journal are varied and interesting, and are from the pens of recognised authoritative writers. The scope of the periodical is wide. With such an extensive range of material the reading interest of the publication must be well kept up. The subjects, even when highly scientific, are always treated in a popular style."—*Southport Visitor*.

"HYGIENE contains many articles of interest."—*Royal Cornwall Gazette*.

"HYGIENE contains much useful advice on matters pertaining to public and personal health."—*Ashton Reporter*.

"HYGIENE is a periodical devoted, as its title would suggest, to the consideration of all matters relating to health. Whatever may be said concerning other health journals, HYGIENE is thoroughly worthy of perusal."—*Hampshire Express*.

"Excellent, entertaining, and well-timed articles."—*Hastings Observer*.

"HYGIENE contains instructive articles on matters connected with health. It is most readable."—*West London Observer*.

"HYGIENE contains a remarkable *exposé* of the 'miraculous productions' of Sequah, Limited. We have not heard of any libel action being instituted against the editor of HYGIENE at present, and shall await developments with interest."—*Cambridge Express*.

"HYGIENE should be read by all, as it contains much valuable practical advice."—*Dundee Courier*.

"Valuable and seasonable articles."—*London Pictorial News*.

"A sanitary and social journal of considerable merit and of great utility."—*Boston Free Press*.

"Any of our readers on the look out for a good sanitary journal could not meet their requirements in a better way than by taking in HYGIENE."—*Bedford Record*.

"HYGIENE is of its usual type of excellence. This journal is well worth perusal, and the information furnished in its columns is both useful and valuable."—*Portsmouth Express*.

"HYGIENE is a first-class sanitary and social journal. The current number deals with a variety of important questions in a very suggestive and instructive manner."—*Spalding Press*.

"HYGIENE is an excellent sanitary and social journal."—*Yarmouth Mercury*.

"Insanitary dwellings, smoke abatement, London sewage and its disposal, and many other questions affecting health are ably treated in the current number."—*Halifax Guardian*.

"HYGIENE is publishing a series of articles on patent medicines, the revelations being sensational. Doctors and scientists also contribute valuable articles on sanitary and social topics."—*Portsmouth Times*.

"HYGIENE has a number of interesting articles worthy of the attention of all who study matters relating to health and sanitation."—*Grantham Journal*.

"A very useful and sensible publication."—*Reading Mercury*.

"HYGIENE is a journal that more than justifies its existence by reason of the many excellent articles embodied in it."—*Torquay Times*.

"HYGIENE is full of information of great practical utility to the householder, and to the social and sanitary reformer."—*Boston Journal*.

"HYGIENE is devoted to the consideration of numerous matters of sanitary and social importance."—*Bath and Cheltenham Gazette*.

"There are many articles of considerable interest in this number."—*Oxford Times*.

"Among the numerous important papers contributed to the number under review are several which deserve special and general notice."—*Grimsby Journal*.

"HYGIENE is a valuable periodical dealing with all matters affecting public and personal health."—*Cornwall Gazette*.

"The excellent articles in HYGIENE deserve special attention."—*South Devon Journal*.

"This sanitary and social journal contains many useful articles on health and the prevention of disease."—*Hampshire Evening Mail*.

"HYGIENE contains numerous important articles on ventilation, water supply, and other sanitary subjects."—*Huddersfield Examiner*.

"Amongst the valuable articles in HYGIENE is an interesting and instructive one on the present epidemic, influenza."—*Reading Mercury*.

"This is a periodical which is devoted to subjects of a social and sanitary character, and it contains a large amount of valuable information."—*Huddersfield Weekly News*.

"HYGIENE gives prominence to questions of sanitation as well as the other important laws of health."—*Northern Echo*.

"HYGIENE contains capital articles, and a host of matters affecting health and home are clearly dealt with in this excellent journal."—*Lincoln Press*.

"One of the most useful of household journals."—*Belfast Evening Telegraph*.

"HYGIENE has important contributions which are well worth a perusal."—*Grantham Journal*.

"HYGIENE deals with important questions of a sanitary character, and its articles are well written and calculated to do much good."—*South Durham Mercury*.

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A SANITARY AND SOCIAL MAGAZINE.

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EDITORIAL AND PUBLISHING NOTICES.

EDITORIAL.—The Editor begs to express his thanks to numerous correspondence, and to state that he will be pleased to receive any articles or correspondents coming within the scope of *HYGIENE*, reports of medical officers of health, items of general or local sanitary interest, newspapers (marked at the part to which it is desired to draw attention), &c.

PUBLISHING.—The terms of subscription not having been raised, although under the new arrangement fifty-two numbers instead of twelve will be sent out annually, all subscriptions now running will continue good for the original period.

Subscribers in arrear are requested to kindly forward their subscriptions without delay, as the keeping of small accounts involves considerable trouble and loss of time.

HYGIENE will be forwarded, post free, to all parts of the Kingdom, and to all countries within the Postal Union (including the United States, Canada, France, Germany, Belgium, Italy, Austria, Hungary, Spain, Portugal, Switzerland, the Netherlands, Russia, Denmark, Sweden, and Norway), on the following prepaid terms:—Twelve months, 6s. 6d.; six months, 3s. 6d. Subscription terms for Australia, India, the Cape, and all other parts of the world can be ascertained by inquiry at *HYGIENE* office,

HYGIENE IN ITS APPLICATION TO THE ARRANGEMENT OF BUILDINGS.*

By P. GORDON SMITH, F.R.I.B.A., Architect to the
Local Government Board.

I HAVE chosen the subject of hygiene in its application to the arrangement of buildings because it has fallen to my lot during the last twenty-five years to pay particular attention to, among other matters, the condition of the occupiers of a variety of different residential buildings in so far as that condition has been affected by the arrangement of the buildings in which they have resided. And I have had the opportunity of criticising the plans of many such buildings, and of additions and alterations to already existing buildings; and I have also in many instances been able to observe the result, years afterwards, of arranging buildings in particular fashion. I have further had the benefit of association, on nearly all occasions, with medical colleagues who have assisted me with their special training and knowledge. Having had the advantage of such experience, it seemed to me, when I was invited to give a lecture before the Architectural Association, that I should best consult the wishes of the members if I endeavoured to lay before them some of the results of that experience.

It may be well at the outset that we should be reminded of some of the various ways in which a building may affect the health of those who have to occupy it, and in saying this I particularly wish to

* A paper read at a meeting of the Architectural Association.

guard myself against being understood to imply that any of the defects to which I shall refer are themselves either the *sole* cause or the *certain* cause of the injury to health with which they are connected. It is probable that such evil results as do occur are brought about by a combination of conditions tending, during a longer or shorter period, to induce a state of health rendering the individual peculiarly susceptible to the particular disease that ultimately develops, and thus preparing the system to serve as a favourable soil for the progress of the disease. The *arrangement* of the building is one, and probably one of the most important factors in the causes of damage to health.

There appear to be three distinct sets of defects in a building which tend, in different ways and with different degrees of expedition, to bring about damage to health, and to foster, if they do not directly produce, conditions favourable to the development of certain specific diseases; thus what are most commonly spoken of and popularly understood as "sanitary defects" are probably the quickest to produce visible effect upon health, and are those which have been so aptly described as "filth diseases," and which convey, if they do not actually cause, enteric fever, cholera, diarrhœa, and other disorders of the bowels produced mainly by excrement-poisoned air and water.

A second series of sanitary defects, entirely different, and slower in their operation on the human subject than the last referred to, is that which tends to disorders of the bronchial type and to rheumatic complaints, to pneumonia, and in a great measure to phthisis and lung disease. This series is concerned with insufficient protection from extremes of temperature and from the effects of dampness and wet subsoil.

A third series of sanitary defects, and probably slower than either of the last, though undoubtedly not less certain in its effect, is the cause of a large amount of phthisis and other pulmonary diseases, of typhus fever, and of ophthalmia, as well as affording a means of intensifying and spreading such zymotic diseases as small-pox, scarlet fever, etc., and likewise of encouraging depression and a tendency to mental complaints. These are more or less directly caused, or at any rate fostered, by insufficiency of air-space, over-crowding, excessive aggregation of persons in one enclosed atmosphere, deficiency of light and of sunshine.

It will be seen that the first of these three series of defects has to do mainly with drainage and water supply; the second relates chiefly to defective construction of walls, foundations, and roofs; and the

third to *arrangement* of buildings with regard to air supply and ventilation, light, and distribution of occupiers.

It is this last-mentioned series of defects with which we are chiefly concerned on the present occasion. But I do not propose to occupy time by discussing the details of arrangements in regard to such matters as aspect and exposure to sunlight, air supply and ventilation.

That the influence which is exercised on the health of the inhabitants of a building by the particular arrangement of the building has, for upwards of thirty years, been recognised in regard to certain classes of building will readily be admitted when we bear in mind that an ordinary hospital for a considerable number of patients is now always sub-divided into separate blocks or pavilions, instead of being constructed in one single block of huge dimensions, as was formerly the case (*e.g.*, the Hotel Dieu in Paris).

The sick, above all, need the best hygienic arrangements in order to insure and expedite their recovery, and wherever those arrangements do not exist, it is not difficult to detect the prejudicial effect upon the patients in the aggravation of their complaints, or the undue slowness of their recovery, and the tardiness of the healing of wounds, or possibly in graver indications of unwholesome conditions. We have all read, for example, of the difficulty of preserving the patients in a maternity hospital from the ravages of puerperal fever, and, in surgical hospitals, from the incursions of erysipelas.

Ever since the disastrous arrangements for the treatment of the sick and wounded troops in the Crimean Campaign, 1853-55, the pavilion system of hospital construction has been accepted as possessing vast advantages over the older plan of arranging an unlimited number of patients in wards piled up several storeys in height, and often all round a quadrangle, as was the case in many old hospitals in all the countries of Europe. But even this pavilion system of construction, though undoubtedly right in principle, is now not infrequently terribly abused, as will presently be explained.

In hospitals for the reception of persons suffering from any of the infectious fevers, again, it is obvious that the hygienic *arrangement* of building has peculiar importance, since it is of the highest consequence that a patient admitted with any such infectious complaint must be so placed as not to risk contracting any other infectious disease during his stay in the hospital, and likewise so that a person sent there under erroneous

diagnosis may be dealt with, with reasonable safety to himself as well as to other patients in the hospital. These special conditions obviously necessitate a special *arrangement* of building.

But it is not the sick alone who need peculiar hygienic arrangement in the building they occupy. Those who are reputed to be in proper health both of body and mind equally need care in regard to the arrangement of the building they occupy if their health is to be properly maintained, and wherever considerable numbers have to occupy the same building, as in an institution, the arrangement of building becomes a matter of vital importance.

Let us consider, for example, the subject of military barracks. The occupiers of these buildings are usually men in the prime of life, more or less in robust health, and selected after medical examination with due regard to their health conditions. And yet experience in the past has shown that unhealthy and badly planned barracks have, in times of peace, killed or incapacitated the soldier to an extent almost equalling that of the most sanguinary wars. In our own army, it was only after the Crimean War that public attention was directed to the subject. In 1857 it was found that, while the death rate of the male *civil* population between the ages of twenty and forty years was 9·8 per 1,000, the mortality among the troops was 17·11, or nearly double. Subsequently an improved system of barrack construction was introduced, which led to a considerable reduction in both the mortality rate and the sickness of the troops; for whereas in 1857 the mortality among troops had been nearly double that of the male *civil* population of the same age, in 1876 the mortality among the troops had been reduced to nearly two per 1,000 *less* than that of the corresponding civil male population, and the hospital accommodation needed for troops has been diminished from 10 per cent. to 6 per cent.

In the French Army after the Franco-German War similar improvements took place. M. Tollet writes that during the ten years ending 1882 France lost 40,000 men in the barracks, while some 60,000 men, who had entered the service in good health, were discharged on account of illness or infirmity. True, typhoid fever, consequent on bad drainage arrangements, was the cause of a large proportion (12,000) of the deaths, but that destructive lung disease, phthisis, appears to have been the main cause of this terrible loss. The success which has attended the improvement of barrack construction in our own country has been noted in certain other countries. In France particularly large

improvements are being made. M. Tollet and Emil Trelat have paid high tribute to the work done in this direction in England, and both of them have urged on their own Government the extreme necessity for similar reforms in France. This is being gradually, though slowly, carried out, and M. Tollet has constructed several barracks arranged on improved principles, under which the buildings comprise a number of one-storey detached blocks, each to contain only a comparatively small number of men. In our own country the new barracks constructed under the Military Forces Localisation Act, 1872, comprise a number of wholly detached blocks, the residential blocks being restricted to two storeys, and holding some eighty to a hundred and twenty men.

As with barracks, so with many other classes of building intended to hold a number of human beings. If we look at the modern prison, we find the same sub-division into blocks or pavilions is now regarded as essential as in the case of a hospital. Wormwood Scrubs Convict Prison is perhaps the best example of a recently built prison in this country. It comprises four main pavilions and numerous smaller blocks, all detached one from another, affording accommodation, including hospital, for nearly 1,500 prisoners and a large staff of officers. A similar arrangement, but with greater sub-division, has been adopted in the new French prison at Nanterre, near Paris, which holds about 1,000 men and 500 women. These prisons afford a striking contrast, as regards arrangement, when compared with the prisons of former days, such as Newgate and the Penitentiary at Millbank, or even the "model" prison at Pentonville, in all of which aggregation of human beings in one block of building—in one enclosed atmosphere—was the common plan. In the still older prisons which John Howard has so graphically described, it is certain that ignorance of the laws of health caused many of the prisoners to die, and a still larger number to be seriously crippled for life. Howard reports that "many of those who survive their long confinement are by it rendered incapable of working—some of them by scorbutic distempers, others by their toes mortified or quite rotted from their feet, many instances of which I have seen." Howard made some valuable recommendations for obviating the defects of old prisons when a new prison was to be erected, one of these recommendations being far in advance of his time. He says, "That part of the building which is detached from the (surrounding) walls and contains the men-felons' ward may be . . . *raised on arches*, that it may be more airy;" also, "The

infirmary or sick wards should be raised on arcades," a plan which in recently erected hospitals which I have seen both in France and Germany, and to some extent in England, has been adopted for hygienic reasons.

In large modern workhouses it is customary to sub-divide the buildings, even those for inmates in health, into separate blocks or pavilions, and to limit the number of paupers in each block to some moderate number according to the class for whom it is intended.

And so, too, with regard to lunatic asylums, which are no longer arranged in one huge block of building as at St. Luke's and Bethlehem Hospitals, and at Hanwell and Colney Hatch, but are invariably constructed in a series of more or less distinct blocks or pavilions, each to hold a certain moderate number of patients, and so that the sun in clear weather may shine between the blocks and at some time during the twenty-four hours into all the rooms. For it has to be remembered that light and cheerfulness, which are so necessary for all, are specially useful in the treatment of all mental diseases.

Nor must it be supposed that the arrangement of building is of importance solely to buildings of the Institution type. It will suffice here for me to point out that persons who reside in cottages arranged on the principle of what is known as back-to-back houses are peculiarly subject to the prejudicial effect of the hygienic defects inherent to that system of house construction. This is very clearly shown by the following table, which has been adapted from a report upon back-to-back house construction prepared by Dr. F. W. Barry and myself for the Local Government Board in 1888.

No. of Registration Districts.	Population (1881).	Percentage of Back-to-back Houses.	Mean Annual Death rate per 1,000 of the Population for five years 1879-1883.				
			All Causes.	Principal Infectious Diseases.	Phthisis.	Other Pulmonary Diseases.	Diarrhoea.
9.	8,713	0	27.5	4.5	2.8	6.6	1.42
13	11,749	23	29.2	4.8	3.3	7.8	1.55
12	11,405	56	30.5	6.2	3.6	7.9	2.12
1	892	100	38.4	8.7	5.2	9.2	3.36

The districts referred to are certain of the 1881 Census-enumeration districts, and it will be seen that as the proportion of back-to-back houses to other houses increases, so is there increase in the mortality rate from phthisis, in that from all causes, and likewise from certain other specified diseases. The important

significance of these rates is all the greater because, with the exception of the means of through ventilation, the back-to-back houses in the district in question were, as a whole, in a better sanitary state than those which had the advantage of through ventilation.

(To be continued.)

PUBLIC HEALTH REPORTS.

Kensington.—Dr. Orme Dudfield's last monthly report shows that during four weeks in April the death-rate of this western district of London averaged 16.4 per annum per 1,000 inhabitants, the population of Kensington being 166,321 at the last census. This mortality rate was 4.3 per 1,000 below that of the whole metropolis. Out of the deaths, 209, registered during this period, 48 were those of children under five years of age, 37 of these being under one year. At and above the age of sixty years 71 persons died; more than one half of the entire mortality thus being under twelve months or over sixty years of age. The deaths from the principal zymotic diseases were only 4 in the month, being 18 below the corrected decennial average. There were 13 deaths from influenza, a disorder that one might expect the warm, dry weather to have banished; that such was not the case, however, is further evidenced by the circumstance that in London during the month 180 deaths were directly attributable to this disease, which probably indirectly contributed to as many more.

Scarlet fever continues rife in Kensington, as in all parts of London; and at the end of April there were 2,037 scarlet fever patients in the Asylums Board and London Fever Hospitals, as against 1,971 on the 25th of March. Smallpox is also prevalent; 19 deaths (3 of which occurred in Kensington) were registered as due to smallpox in the four weeks under consideration; and on April 22nd there were 450 cases under treatment in public hospitals of the metropolis, as against 423, 321, and 263 on the preceding three Saturdays.

Braintree Urban Authority.—The area of this Essex town is 2,282 acres; the enumerated population at the last census was 5,061, showing a slight falling off in the ten years. The town is situated upon high ground, some 230 feet above the sea level, on the river Brain, whence it derives its name. There is a plentiful and good water supply, pumped from a well 430 feet deep, sunk into the chalk formation beneath the London

clay; from this it is conveyed to high and low service tanks, and a constant supply is furnished to the town.

The town drainage is effected by a main drain, receiving nearly all of the sewage of the place; after running the length of the town this sewer discharges its contents into settling tanks, and the effluent is subsequently pumped on to 24 acres of land and dealt with by broad irrigation. The chief fault of the existing sewers is that they are not sufficiently ventilated, and, although they are periodically flushed, that is not enough to keep them in a proper condition.

As Dr. C. E. Abbott, the Medical Officer of Health, remarks, the Braintree drainage scheme was carried out in 1856, at which period the necessity of sewer ventilation was not so fully recognised as at the present day. Dr. Abbott advises the placing of a number of vent-pipes in suitable situations, and at the higher levels, believing this arrangement to be superior to air gratings fixed at the level of the roads, as such gratings are, in his opinion, usually a source of annoyance, and sometimes of actual danger to health.

Some of the cottage property is in an unsatisfactory condition, either through jerry-building, structural defects, or dilapidations. For the first-named Dr. Abbott suggests that efficient building bye-laws should be adopted. This is a very natural and proper suggestion, but seeing that he made it as long back as 1888, in his annual report for that year, the local authorities cannot be charged with what Talleyrand had a rooted aversion for, namely, "*trop de zèle*." However, it is expected that early in this year a complete series of bye-laws relating to new streets and buildings will come into operation. Dr. Abbott has called in the aid of photography to show the dilapidated state of some of the cottages; and certainly the illustration at page 7 of his report, plainly showing the holes in the walls, the broken windows (in some instances boarded up as the only means of keeping the wind and rain out), and generally woebegone appearance of several cottages which have been condemned as unfit for human habitation, proves more than pages of letterpress would do. One remark of Dr. Abbott is so true, not only of his district, but of thousands of others throughout the country, that we quote it here: "One of the chief factors in the causation of disease is the faulty construction of cottages and the bad state of repair that many are allowed to fall into. Rheumatism and various bronchial and chest affections are greatly dependent upon these defects, and such influences affect not only the aged and infirm, but children

and ailing people generally. Such dwellings from their depressing influences, especially in the winter, render a large class of the poor more susceptible to disease, and thus indirectly increase the poor rates."

The birth-rate during 1892 was 24·50 per 1,000; the death-rate, 18·17, too high for a small urban district. Yet the town has been singularly free from zymotics during the twelve months, only two deaths—both from measles—having been registered as due to this class of diseases, giving a zymotic death-rate of '39 per 1,000 living persons.

From particulars given in Dr. Abbott's report, as well as from further details given in the separate report furnished by the sanitary inspector, Mr. John H. Jevons, it is evident that a good deal of sanitary work has been done in 1892, such as house-to-house inspection and general supervision of sanitary arrangements. About one-fifth of the entire number of houses in the town have been carefully inspected, and it is intended to complete a thorough inspection of the whole in due time. Seeing that sanitary officials are often regarded with dislike, and sometimes treated with hostility, especially by the lower classes, it is satisfactory to find Mr. Jevons writing: "I am pleased to say that in the discharge of sometimes unpleasant duties I have met with courtesy from all with whom I have been brought in contact."

ALCOHOLISM IN RELATION TO PUBLIC HEALTH, AND THE METHODS ADOPTED FOR ITS PREVENTION.

By HARALD WESTERGAARD, Professor of Political Economy in the University of Copenhagen.

AN exhaustive solution of this question would require reliable details concerning the consumption of intoxicating liquors, but here we meet with great difficulties. In many cases the only fact given will be the average quantity consumed per head of population, and even this is not always stated correctly. But it is evident that the effect of alcoholism on public health depends not only on the average quantity consumed, but on the distribution of this quantity. Two countries consuming the same quantity of spirits per head of population may suffer very differently from their effects; in one country the quantity is perhaps uniformly distributed, whereas in the other there is a great number of total abstainers and of those habitually temperate, the mass of the intoxicating liquors being consumed by a small minority of the

population. Evidently in the latter case the effects of alcoholism will present themselves in a much more appalling form than in the former. In the absence of facts showing this distribution, it will be expedient to look for other data indirectly indicating the extent of intemperance. In most countries, for instance, more or less complete data regarding divorces of marriages can be had, and in several countries we find that an enormous part of the divorces bear some relation to the abuse of strong liquors. The number of persons in different parts of the country who are somehow or other concerned in the liquor trade are also very illustrative of this question, if the great extent of the smuggling trade does not render them too inaccurate. Or I may mention the statistics of poorhouses and lunatic asylums, where the inmates very often are the victims of intoxicating drinks. The large number of police offences and crimes caused by alcoholic excess will show to what extent in many countries alcoholism claims the attention of the public.*

A supplementary report of the Registrar-General of marriages, births, and deaths in England contains valuable facts of this kind, showing, for instance, for innkeepers between twenty-five and sixty-five years of age a mortality more than 50 per cent. higher than for the total population, whereas hotel servants presented an increase of 120 per cent. above the average rate of mortality, being among all the occupations chosen that which shows the highest rate of mortality. Dr. Farr found during an earlier period than that of the supplementary report referred to that at the age of twenty-five, the mean after-life time of publicans was thirty-one years, among the whole population thirty-six years, and of the clergy forty-two years, the latter being thus eleven years in advance of publicans. But this high mortality is not an absolutely exact proof of the effects of intemperate habits. On the one hand, a number of publicans may be supposed to be habitually temperate, the effects of intemperate habits on the remainder thus being so much greater; on the other hand, the high mortality may partly be ascribed to other causes, such as night work or unhealthy and ill-ventilated rooms. Still, an examination of the causes of death will show that a considerable part of the high mortality is due to alcoholic drinks.

Another series of observations directly bears on the mortality among persons with different habits as to intoxicating liquors. To this class belong the

experiences of the United Kingdom Temperance Institution, showing in the temperance section a mortality which is only three-fourths of that in the other section. These remarkable results are corroborated by other facts, as I will try to show further on; but the principles adopted for these investigations having, as far as I know, not been published, they must as yet be accepted with some reserve. Another interesting and frequently quoted investigation is contained in Neison's great work, "Contributions to Vital Statistics," showing an appalling mortality among persons decidedly addicted to drinking, the number of deaths expected according to the mortality of the whole population being 110, whereas the actual number of deaths was not less than 357. The name of the author has secured to the investigation a great reputation, but we cannot altogether rely on it, the methods being not unobjectionable. On examining Mr. Neison's paper it will be found that the number of deaths is exactly equal to the number of persons "exposed to risk." We have thus only observations on persons who died during their exposure to risk, but not on those who outlived it. We would, therefore, not be able to find from these observations the mean duration of life among drunkards, but only their mean age at death. The great difference between these two expressions is well known. I may here also quote one proof by Dr. Farr in his posthumous work, "Vital Statistics," p. 457. He found that, whereas the mean duration of life in Sweden at the beginning of this century was thirty-nine years, and in England somewhat later forty-one years, the mean age at death was respectively thirty-one and twenty-nine years. Judging only from the latter calculation, a statistician would be led to the conclusion that the mortality was smaller in Sweden than in England, whereas in reality at that time the reverse was the case.

The only difference between this statement about the mean age at death and that which would have been found from Mr. Neison's observations is this: that the latter only date from the day the persons under observation were supposed to begin their intemperate habits, and not from their birth or some fixed age; but in reality the principles are the same. The only way of getting correct materials would be to watch a number of drunkards during a certain period, just as a life office follows the insured persons from one year to another, calculating the rate of mortality among the whole number exposed to risk. It would not be difficult for a medical body of men to

*A considerable number of facts bearing on these questions will be found in Dr. A. Baer's work, *Die Trunksucht und ihre Abwehr*. Wien und Leipzig, 1890.

collect useful data of this kind by following for some years persons of intemperate habits among their clients.

An interesting investigation, corresponding to Neison's, has been made by Dr. Isambard Owen of persons of different habits with regard to intoxicating liquors. It was found that the mean age at death for total abstainers was eleven years shorter than that of "habitually temperate" persons (exactly the same difference as found by Dr. Farr between the mean duration of life for publicans and clergymen), and one year shorter than of "decidedly intemperate." This result may arise solely from the fact, suggested by Dr. Owen in explanation, that the total abstainers are more frequently found in the younger generation than in the older; for among young persons naturally several premature deaths will take place, thus reducing the mean age at death. But the report gives very interesting particulars in two other directions. First, as to the causes of death, which are carefully recorded in Dr. Isambard Owen's paper; secondly, as to the distribution of the population according to different habits. It appears from the report that about one-seventh to one-sixth of the persons under observation were decidedly intemperate, about the same number were "free drinkers," and more than one-fourth "careless drinkers," leaving only somewhat more than two-fifths for total abstainers and the habitually temperate. It may be objected that, as the mortality among intemperate persons is probably much greater than among temperate persons, the former class will show proportionately more deaths than the latter; but, even if this would diminish the proportion of intemperates considerably, the fact remains that a very great part of the male population in England must be said to be addicted to drinking.

What is now the effect of alcoholism on public health? What are the losses of life caused to a population by intemperance? This question can, to a certain extent, be answered by examining the causes of death, especially delirium tremens and chronic alcoholism. It has been objected that these causes of death supply an unsatisfactory picture of drinking excess, because the wish to spare the feelings of surviving relatives makes returns of such deaths less trustworthy, and it has therefore been proposed to use other diseases as a measure—such as liver disease (especially cirrhosis of the liver). Yet it is worth while to examine the above-mentioned causes of death. Through the courtesy of the Danish statistician, Dr. Carlsen, I have been enabled to study the mortality from these causes during a year in different classes of society in the urban population of

Denmark. I have thus found that among males above twenty years of age 5 to 6 per cent. of all the deaths registered were ascribed to delirium tremens, chronic alcoholism, and sudden death in drunken fits (*mors inebriata*), not including fatal accidents. In one-third of these cases a combination of some of these causes with other causes was registered, but in reality the number of such cases is undoubtedly much greater, thus giving the above-named percentage a considerable increase. In the class of working men the proportion is still greater, as will appear from the following table:—

Age.	Whole Male Population.			Working Class.		
	Total number of Deaths.	Deaths from Alcoholism.		Total number of Deaths.	Deaths from Alcoholism.	
		Absolute Number.	Per-centage.		Absolute Number.	Per-centage.
20	218	1	—	100	1	—
25	396	24	6	198	19	10
35	517	48	9	255	25	10
45	581	52	9	220	25	11
55	756	43	6	248	22	9
65	604	20	3	151	7	5
75	524	5	1	72	2	—
Total	3596	193	5.4	1244	101	8

Out of twelve adult working men who died, one has thus fallen a victim to chronic alcoholism, &c., and between the ages of twenty-five and sixty-five 10 per cent. of all the deaths were ascribed to these causes.

(To be continued.)

COCOA AND CHOCOLATE.

MANY persons, even of the educated class, have a somewhat hazy notion about the origin of cocoa, now a universally appreciated beverage. This "open mind," or, rather, mixed one, is doubtless due in great measure to the existence of several words having a similar sound and almost similar spelling.

First, there is coca, from which is obtained the alkaloid cocaine, much employed as a local anæsthetic. This is a plant growing in Peru (the *Erythoxylon coca*), and its leaves—the part used—possess the property of sustaining strength and diminishing the tendency to fatigue during great bodily exertion, such as long

marches. Next comes the cocoa-nut, or, as it should with more correctness be spelt, coco, as in the French name. It is the fruit of a species of palm—*cocos nucifera*—found in abundance in many tropical countries. Cocoa, employed for making the beverage of that name, is got from the seeds of the chocolate tree (*Theobroma cacao*), also a denizen of the tropics. This tree exists, both in a wild and in a cultivated condition, in Central America and the northern parts of South America, the West Indies, Ceylon, and some portions of the continent of Africa.



FIG. 1.—Pod, Leaves, and Flower of the Cacao.
Pod cut open, showing seeds, or beans.

Cacao, to which Linnaeus gave the distinctive title of *Theobroma* (from two Greek words, signifying “the food of the gods”) on account of its delicious flavour and nourishing properties, is an evergreen which grows to the height of from fifteen to thirty feet, with very long drooping, bright green leaves, of oblong shape and pointed at the ends. The flowers and fruit which it bears at all seasons of the year spring from the trunk and thickest part of the boughs, with short stalks. The flowers, arranged in clusters, are small. The fruit, from seven to nine inches long and three to four inches broad, contains in each pod from twenty to forty seeds, embedded in a soft, pinky-white pulp. There are several varieties of cacao, some red, others yellow, the latter having the preference amongst cultivators, partly on account of yielding a larger proportion of seeds than the other, partly because it is better adapted to cultivation.

Although cacao is in bearing more or less all the year round, the chief months for cropping are May and June and October and November. The gathering is conducted by a number of men, who pick out the ripe pods,

and remove them with the aid of a kind of cutlass or of a hook with a cutting edge. Much care is requisite, otherwise the tree soon becomes practically valueless. The pods are collected into heaps, and subsequently broken, and the seeds drawn and sorted, so as to reject all black, unripe, or damaged beans. Next the process of fermenting in what is technically called the “sweating house” has to be gone through before the cacao beans are dried in the sun. Other processes, such as drying, roasting, and winnowing from the husks, must be performed before the seeds are broken up into coarse fragments known as *nibs*. These nibs, from which cocoa and chocolate are prepared, contain 15 to 20 per cent. of albuminoids and 50 per cent. of fatty matter—cocoa butter.

It was not until a period well into the seventeenth century that any writers commenced to refer to cacao and its valuable qualities, although Columbus is said to have brought samples home from the just discovered New World in 1494. Prescott, in his “History of the Conquest of Peru” in 1531, by Cortez, describes the national drink of Peru as made from cacao. The Emperor Montezuma, he says, took no other beverage than “chocalatl,” a preparation of chocolate flavoured with vanilla and other spices. “Chocalatl” is a Mexican word, the pronunciation of which resembles the clattering sound produced when grinding the cacao, and mixing it with sugar in the native handmill. Hence is derived the name now used, chocolate.



FIG. 2.—Cocoa adulterated with common Arrowroot and Potato Starch, as seen by 1·5-inch power, and A eye-piece.

The earliest record of chocolate being used in this country is an announcement in the *Public Advertiser* of 1657 that “in Bishopsgate-street, in Queen’s Head Alley, at a Frenchman’s house, an excellent West India drink

called chocolate is sold, where you may have it ready at any time, and also unmade at reasonable rates." The price of the "unmade" article, *i.e.*, the nibs, was 7s. per pound.

Since the date mentioned cocoa and chocolate have become much cheaper, while they have greatly increased in consumption; an increase which, as was pointed out some time back in *HYGIENE* by Dr. Alfred J. H. Crespi, has been unfortunately accompanied by an increase in the adulteration of cocoa. This deterioration is more particularly present in cocoas of foreign manufacture, which are too often admixed with alkali, causing a thickening in the solution when the cocoa is dissolved in hot water, and thus imparting a delusive semblance of strength. Chemically prepared cocoas contain a considerable percentage of potash, which has been proved to cause serious affections of the kidneys and liver, especially in young people. The public will do wisely when drinking cocoa to select some well-known English brand like Cadbury's, which is guaranteed to be absolutely pure cocoa, roasted by a special process, preserving all the nutritious properties of the cocoa bean.

The two illustrations which we give of pure and adulterated cocoa powder will enable any one with a good microscope to detect admixture with common



FIG. 3.—Pure decorticated Cocoa. Starch cells, inner membrane, and portions of embryo.

arrowroot and potato starch, frequent adulterants used by unscrupulous manufacturers. The best safeguard against such adulterations is to exercise the simple precaution of purchasing only cocoas bearing the names of respectable firms.

PATENT MEDICINES.*

No. II.—CLARKE'S BLOOD MIXTURE.

By the EDITOR.

In the first article of this series we pointed out that the word "patent," as applied to patent medicines, is most misleading, for the purchaser is left wholly in the dark as to the nature of what he buys. The consequence is, either that he may lay out his money upon a bottle of water, as shown by the analysis of Mattei's "Electrical Remedies," published in our December issue, or that he may unwittingly dose himself or some member of his family with the most potent drugs.

Judging by the numerous communications which have reached us, it is evident that the subject of patent medicines is one of general interest, and that many thinking people are of accord with us as to the urgent desirability of amending the law relating to them. Many of our correspondents ask for information concerning various advertised nostrums. The field is so vast that we are at a loss to decide what preparation to take next—as a topic of discussion only, thank goodness! Well, we will deal with the first letter that comes to hand from a heap in front of us. It is from a lady subscriber who inquires, apparently with no small misgivings, whether she, being in delicate health, is right in continuing the use of Clarke's Blood Mixture.

Recollecting that this identical mixture was reported upon by Dr. Alfred Swaine Taylor, F.R.S., years ago, we referred to the back volumes of the *Lancet*, and in that for 1875 we found, forming part of a letter headed "Quack Medicines," a copy of the "Report of Analysis of a liquid described as 'Clarke's World-Famed Blood Mixture or Purifier,'" by Dr. Taylor, the late eminent analyst and lecturer on medical jurisprudence at Guy's Hospital. The examination of an eight-ounce bottle of the mixture showed the ingredients to be as follows:—Iodide of potassium, 64 grains; chloric ether, 4 drachms; solution of potash, 30 minims; water, coloured with burnt sugar to give the requisite tint, $7\frac{1}{2}$ ounces. The dose directed to be administered was one tablespoonful (half-an-ounce)

* Some of the articles constituting this series have already appeared in *HYGIENE* when published as a monthly magazine, and were reprinted in two volumes. But as one of these—Vol. I.—is out of print, we propose, at the request of many readers, to commence a new series, as much of the matter will doubtless be fresh to the great majority of the readers of *HYGIENE* in its altered form. New reports and analyses will appear from time to time. No. I. (May 13th) included:—Patent Medicines; Patent Medicine Law; Mattei's Electro-Homoeopathic Remedies.

four times a day. "Why such a mixture as this," says Dr. Taylor, "should be designated a 'blood mixture' and a 'blood purifier' is incomprehensible. It has no more claim to this title than nitre, common salt, sal ammoniac, or other saline medicines which operate on and through the blood by absorption. Its properties (*i.e.*, those of iodide of potassium) are well known, and there is no novelty in its employment. The only novelty in this form of mixture is that the iodide is dissolved in water coloured with burnt sugar, and that it is described as a 'blood purifier.' The four doses directed to be taken daily represent sixteen grains, and if the person taking it is not under medical observation, such a daily quantity as this may accumulate in the system and do mischief. In some constitutions the iodide of potassium frequently taken proves specially injurious. It produces iodism." Iodism is the condition when symptoms of special poisoning show themselves, similar to the salivation, &c., in cases of mercurial poisoning.

We have purposely quoted at some length from Dr. Taylor's report, partly because it emanates from such a high and unimpeachable authority, partly because the facts are stated by him with marked moderation.

As regards the deleterious effects of iodide of potassium, in unsuitable cases, or in long-continued doses, all other medical authorities fully agree with Dr. Taylor. For instance, Dr. Sydney Ringer, physician to and lecturer at University College Hospital, writing about this drug in his "Handbook of Therapeutics," says that if its administration is continued for a long period, or if the patient manifests great susceptibility to its actions, iodism is produced; also that this condition may arise after very small doses. The parts chiefly affected in iodism are the eyes, the nose, the mouth, the stomach, and the bowels; there is also sometimes a distinct skin eruption. Inflammation of the mucous membranes covering the eyes, running at the nose, a form of salivation resembling that caused by mercury, purging, and nausea, with loss of appetite, all or some of these symptoms will then make their appearance. "A grain or even less," writes Dr. Ringer, "may affect the stomach;" moreover, he observes elsewhere, "Iodide of potassium sometimes produces distressing depression of mind and body. The patient becomes irritable, dejected, listless, and wretched. Exercise soon produces fatigue, and perhaps fainting."

We could quote hundreds of similar proofs of the

danger arising from the indiscriminate administration of this powerful drug which constitutes the basis of this so-called "blood mixture;" but, surely, enough has been said on this point to convince the most sceptical that iodide of potassium should never be given except in selected cases, and under the supervision of a qualified practitioner.

Yet the printed directions accompanying a bottle of Clarke's Blood Mixture which we recently purchased, after recommending this preparation as a never-failing cure for a whole host of diseases, state that it is "warranted free from anything injurious to the most delicate constitution of either sex."

We will leave our readers to form their own opinion on this question. Before quitting the subject, we may mention in fairness to the manufacturers of this blood mixture that the analysis of the bottle just referred to made in the laboratory of Mr. Alfred W. Stokes, F.C.S., public analyst to Paddington, Bethnal Green, and St. Luke's, gives only 48 grains of iodide of potassium in the eight ounces. We infer, therefore that at some period subsequent to 1875, the manufacturers, out of deference to Dr. Taylor's views, diminished the quantity of this drug so as to reduce, the dose from four to three grains. It is a pity that the reduction was not carried still further. Indeed, if the iodide of potassium had been omitted altogether, the warranty might have been given on better grounds than now, while a corresponding increase of the water and burnt sugar could have done no possible harm to "the most delicate constitution of either sex."

ON HAY-FEVER, HAY-ASTHMA, OR SUMMER-CATARRH.

BY THE EDITOR.

THE affection to which these different names have been variously applied, according to the relative intensity of the febrile, bronchial, and catarrhal symptoms, is one of much peculiar interest.

In some patients the febrile, in others the bronchial or pulmonary, and in others the catarrhal symptoms predominate; while in many again the several groups of symptoms are blended, or alternate with each other. The catarrhal, and next to them the febrile, symptoms are those most commonly present in patients under thirty-five years of age; after this period the asthmatic symptoms are frequently most marked.

Although it is a disorder in which the symptoms are often unmistakable, and in which the sufferings of the

patient are not infrequently very severe, scarcely any references to it are to be found in any of the older works on medicine. Dr. Heberden, writing at the commencement of the present century on the subject of catarrh, observes:—"I have known it (catarrh) to return in four or five persons annually in the months of April, May, June, and July, and last a month with great violence." The author from whose work this solitary passage is taken seems to be the only medical writer who noticed the occurrence of this peculiar affection previous to the publication of Dr. Bostock's remarks on *Catarrhus Æstivus*, which appeared in the "Medico-Chirurgical Transactions" for 1828.

Dr. Bostock was himself a sufferer from hay-fever, and was consequently greatly interested in its history and treatment. The result of his investigations showed that the disorder was one which prevailed throughout England, and the other particulars elicited by his inquiries into the subject were of considerable importance.

Since his time, although it had become recognised as a distinct complaint, little was done until recently towards the advancement of our knowledge of the pathology and treatment of hay-fever, excepting the publication of an interesting monograph entitled "Der Typische Frühsommer-Katarrh, oder das sogenannte Heu-Fieber, Heu-Asthma" (On the Typical Catarrh of Early Summer, or the so-called Hay-Fever or Hay-Asthma) which appeared in 1862 from the pen of my esteemed friend, Dr. Phœbus, Professor of Medicine in the University of Giessen.

As the affection is attributable to other causes besides the aroma of hay, Dr. Phœbus prefers to designate it by the name of "Frühsommer - Katarrh," which may be abbreviated to "Summer - Catarrh," thus corresponding with Dr. Bostock's term of *Catarrhus Æstivus*. Hay-Fever being, however, the name by which the disorder is commonly known, that term will be chiefly used in the following remarks.

In connection with the meagre records of hay-fever, and, in fact, with the almost complete non-recognition of it until the last thirty or forty years, arises the question: Is hay-fever a disorder of recent origin, or did the older physicians know of it without thinking it worthy of special notice? To the first part of the question we must naturally answer in the negative, for the causes of the affection are so common and so universal that it is highly improbable that the disease can have arisen only in recent times; as regards the second part of the question, it may be observed that, although the moderns are apt to pride themselves upon

their superiority in medicine, our ancestors were keenly observant of the phenomena of disease, and were unlikely to ignore the existence of an affection which recurs annually during a considerable portion (and in the majority of cases during the whole) of the patient's lifetime. So common, indeed, is hay-fever that even animals are subject to an analogous disorder. Some instances of this nature are mentioned in Dr. Phœbus's book, and amongst them that of two dogs which exhibited many of the prominent symptoms of hay-fever after having had their kennels strewn with freshly-cut hay. This fact occurred under my own observation, and was communicated by me to Dr. Phœbus, with some other points bearing upon the subject, which he also made use of in his book.

As it would serve no important purpose to attempt to explain why hay-fever is not mentioned by the older writers, it will be best to pass on to the consideration of the disorder itself. There is no doubt, however, that the disorder existed, as it frequently does now, without its real nature or cause being suspected. Many cases of supposed influenza, and other affections of the air-passages and lungs, occurring in the summer and autumn, ought properly to be included under this head. I have frequently been asked "whether hay-fever is more common than formerly?" It is difficult to answer this question with certainty, but from the numerous facts which I have collected I am somewhat disposed towards a reply in the affirmative.

The symptoms of hay-fever are of varied character. Dr. Phœbus arranges them in six groups; and as his classification is a sound one, I shall follow it here. Of course they seldom occur in the same regular manner as is detailed—sometimes those of one group, sometimes those of another group, prevail; sometimes several symptoms occur simultaneously.

The first group of symptoms are connected with the nostrils, and are similar to those of a severe catarrh, especially sneezing, which is very loud and frequent, and recurs in paroxysms of ten, twenty, or more sneezings in rapid succession, coming on at short intervals, so that the sufferer may sneeze as often as several hundred times in the course of the day. It is not at all unusual for a patient suffering from hay-fever to have six, eight, or more attacks of sneezing in the course of the day, the number of sneezings at each fit ranging from fifteen to fifty. One patient, a medical man, thirty-four years old, whose case has been put on record, and in whom the first attack of hay-fever made its appearance as early as the eighth year of his age, in describing his own case refers to the sneezing, and

the struggle against it, as forming a continuous and very troublesome annoyance. When this patient passed the day without much sneezing, he usually enjoyed almost entire freedom from asthma during the night; on the contrary, when the sneezing had been more violent and frequent in the daytime, the patient was generally tormented by asthmatic paroxysms at night. The excitement of the sneezing appeared to make the bronchi peculiarly irritable, and liable to take on spasm. I have observed a similar connection between these two symptoms in several cases which have been under my treatment. At the beginning of the attack there is no discharge, or only a slight one, of nasal mucus, but after a few days a considerable quantity of watery, limpid fluid is discharged from the nostrils. The nose very frequently becomes swollen, red, and inflamed, but the sense of smell, although occasionally diminished, is seldom completely lost. Great diversity is observed in this respect in different individuals; in one the sense of smell is but little if at all affected, in another it may be entirely lost, and in a third the faculty of smell may become so acute as to render it impossible for the patient to remain in a room where any strongly-scented flowers have been placed.

The second group of symptoms are observed in the eyes, and the patient complains of catarrhal ophthalmia, with greatly increased secretion of tears. Heat and a sensation of fulness are felt, first along the edges of the eyelids, particularly at the inner angles, and after a time these symptoms extend over the whole of the eyeball. Acute itching and irritation are subsequently experienced. The flow of tears is often excessive; the conjunctival lining of the eyelids looks red and swollen, especially at the margins, and a thick, yellowish matter is secreted by them. The eyesight is weakened, and there is more or less intolerance of light.

A patient with whom I corresponded last year, as she was too ill to come to town to consult me personally, and lived at too great a distance (her residence being in Ireland) to allow of my visiting her, stated that she could only obtain relief from the great intolerance of light by keeping perfectly quiet in a darkened room. In the case of many sufferers it is truly pitiable to see them blinking and shedding copious tears when they are exposed to the sun's rays. Persons suffering from hay-fever are not long in finding out that the cooler they remain the more tolerable is their complaint, and when I visit a patient in summer-time, without previously being told the nature of the affection for which I am required to prescribe, I can generally learn the nature of the case by being ushered into a darkened room, with all the blinds drawn.

The eyelids are frequently swollen, and even œdematous. When these symptoms occur, both eyes are usually affected simultaneously.

The third group of symptoms are observable in the throat, and are somewhat similar to those present in catarrhal sore throat. The throat is red inside and swollen; there is intense itching at the back part of the soft palate, and this unpleasant sensation is aggravated by the ineffectual efforts which the patient makes to relieve it by moving the tongue about the mouth. Sometimes an eruption of a number of minute inflamed points makes its appearance at the back of the mouth. There is difficulty, and occasionally also pain, in swallowing; the mucous secretion is at first diminished, but is subsequently increased, and becomes very abundant. This morbid condition seldom extends to the tonsils or uvula, but they appear redder than usual, and are relaxed.

(To be continued.)

REVIEWS AND NOTICES OF BOOKS.

OUR VIANDS: Whence they Come and How they are Cooked. By Anne Walbank Buckland. Crown 8vo., 308 pages. London: Ward and Downey.

(Concluded from page 8, May 13.)

DURING the siege of Paris the population of the French capital were driven to such straits for variety of food, especially of flesh, that horses, donkeys, dogs, cats, rats, and even animals from the *Jardin d'Acclimation* (corresponding to our Zoological Gardens) fell a prey to carnivorous appetites. Speaking of dogs as an item of food, we are reminded that the Chinese fatten dogs for the table; we are also reminded of the following anecdote. Shortly after the opening of certain Chinese ports to the English, in accordance with the treaty made between the two countries, an English man-of-war visited one of these ports, and the officers were entertained by a Chinese mandarin. Various savoury dishes, mostly prepared in the form of stew, served with rice, were introduced at the dinner. A British naval officer took a great fancy to one particular viand, and, seeing that it was about to be removed, made signs that he would like a second supply. As the Englishman did not know a word of Chinese, and the mandarin was equally ignorant of the officer's language, they looked at each other for a moment in dumb show. But the lieutenant was prompt and equal to the occasion, so that he held out his plate in a suggestive manner, at the same time

imitating the "quack, quack, quack" of the animal whose flesh he imagined he had been eating. The mandarin smiled significantly, shook his head, and having set the officer right by saying in reply, "bow-wow-wow," gave his guest a plentiful helping. Etiquette necessitated his consuming what he had so pointedly asked for, though with considerably diminished gusto; and for a long time afterwards "bow-wow-wow" often raised a hearty laugh at the officers' mess. Perhaps the most repulsive-looking animal that is used for human food is the octopus, or cuttle-fish; yet in the towns along the Italian and French seaboard this is commonly offered for sale in the streets, both in the uncooked state and boiled in oil. Certainly there is much force in the old homely adage that "one man's meat is another man's poison."

A somewhat more agreeable subject is provided in Part III. of Miss Buckland's book, which deals with vegetables and fruits. The earliest fruits in use for human food appear to have been the most universal, namely, nuts, of which Nature provided a plenteous supply, the more welcome because, like the squirrel, prehistoric man was able to store them for the winter. Among the relics of the Swiss lake-dwellers, three kinds of nut have been discovered, evidently destined for food, the fruit respectively of the beech, the hazel, and the chestnut. Acorns, from which our remote ancestors in these islands, in common with the tribes then occupying many parts of the European continent, derived part of their daily sustenance, are another kind of nut formerly eaten by men, women, and children, though now relegated to the feeding of pigs. Grateful as acorns appear to the palates of the last-named humble animals, they must have formed, at best, a sorry meal for human beings; still, they were easily obtainable in the huge oak-forests which then covered the country, filling and slow of digestion, this last quality being one of great importance to savages, who knew as little whence their next meal would come as the half-starved families of the poor dockers do to-day. Feeding pigs exclusively upon acorns has a tendency to make their flesh peculiarly tough; and we would throw out the suggestion, for what it is worth, to people who are always puzzling themselves upon questions of cause and effect, whether the enduring qualities of the British race are in any degree traceable to the food upon which our ancestors were nourished.

Apples are placed by Miss Buckland as, next to nuts, the fruit of greatest value, at all events in

temperate climates, their excellent hygienic and keeping qualities adding greatly to their usefulness. As regards antiquity, the apple certainly scores high, seeing how much it influenced the condition of all mankind after the events narrated in an early portion of Genesis. As some people express doubt as to what kind of fruit led to the expulsion of our first parents from Paradise, we shall not attempt to decide this knotty point; but, at any rate, we think that the late General Gordon, of Khartoum fame, must have drawn upon his imagination when he not only located the Garden of Eden in the Seychelles Islands, but asserted that the forbidden fruit was the great double cocoanut, which, as Miss Buckland observes would certainly have required some assistance, satanic or otherwise, to break it before its contents could be eaten. Of course, the fruits of temperate climates cannot be compared for variety, size, and lusciousness with those which are grown under more favourable conditions in other parts of the world. Many of these find their way to England; but doubtless, with more care in selection and packing, there are many others which might be exported to this country, from South Africa and elsewhere, and sold at a price to suit the pocket of people of moderate means. It may be mentioned, in passing, that until some 300 years ago the varieties of both fruits and vegetables grown in England were few and insignificant. From the East came most of the fruits now commonly grown in our gardens, while, from the West, Sir Walter Raleigh introduced the now universal potato, which he found growing in Virginia. It was a long time however, before this vegetable came into favour. The vegetables longest known in England are the onion, the leek, and the garlic, all three of which were introduced by the Romans during their occupation of this island, and the cabbage, which was probably indigenous in a wild state, the same as mushrooms are supposed to have been.

An excellent collection of recipes, old and new, some remarkable for their quaintness and antiquity, others for their gastronomic value, brings Miss Buckland's book to a close.

Bacteria and Fungi.—At the Royal Society's *Conversazione* on the 10th instant, Professor Marshall Ward delivered an interesting lecture showing that, like the light of the sun, the light of the electric arc exercises a destructive action on bacterial organisms and fungi. Electricity in various forms constituted the leading feature of the *conversazione*.

NEWS AND NOTES.

Infectious Hospital for Epsom and Carshalton.—The Committee on Unopposed Bills in the House of Commons have passed a provisional order of the Local Government Board empowering the formation of a joint hospital for these districts. Epsom is amongst the places recently visited by a severe epidemic of small-pox. It is supposed that the infection was introduced into the place by some of the great throng of tramps and itinerant beggars attracted to Epsom during the Spring Race Meeting last month.

* *

Proposed English Colony for Epileptics.—At a meeting held at St. Martin's Town Hall, Charing Cross, London, it was resolved to support the movement inaugurated by the National Society for the Employment of Epileptics, for the formation of a Farm Colony on the plan already adopted in Germany and France. It was stated by the chairman (Col. Montefiore) that epileptics in England and Wales were in the proportion of two per 1,000 of the population, and Mr. W. Rathbone, M.P., and other speakers warmly supported the proposed scheme. Mr. Passmore Edwards has given a first donation of £1,000 towards the establishment of a farm colony, and about £4,000 more have been received from well-wishers and friends. The object of the Society is to purchase, or to rent with option of purchase, an estate of one hundred acres or thereabouts, within an hour's railway journey of London, with a good house and cottages, to which they propose to add other houses from time to time, so as to gradually create a farm colony for epileptics. These would be lodged in cottages receiving from ten to twenty inmates. The industries first to be attempted will consist of market gardening, dairy work, and poultry farming. The institution is to be, in some measure, self-supporting.

* *

Vaccination.—In the House of Commons, on the 12th instant, Mr. Hopwood moved a resolution declaring compulsory vaccination to be unjustifiable, and demanding the repeal of the law on the subject. The customary assertions which serve the place of arguments on such occasions were brought out, accompanied by charges of ignorance and self-interest on the part of the medical profession. Sir Walter Foster, speaking for his department, the Local Government Board, utterly demolished the assertions of the mover and seconder of the resolution in a sound and convincing speech, ably defending his professional brethren against the unworthy and unfounded charges that had been made against them. Sir Walter observed that it must be manifest to anyone that if it were a question of self-interest medical men had much more to gain by epidemics of smallpox than they received from vaccination fees. He warned the House against accepting the fallacious statistics that had been adduced, and characterised the motion as "inopportune, inconvenient, and injudicious," in view of the circum-

stance that the Royal Commission on Vaccination, after sitting for four years, and giving a full consideration to the evidence on both sides, are within appreciable distance of presenting their report. "There had never been a fallacy," Sir Walter said, "so foolish that it could not be made important by an injudicious amount of persecution." This remark holds good whether as regards anti-vaccinationists, the Peculiar People, or any other faddists, whose opposition to sanitary measures intended for the public good is as great as their knowledge is small. Such people court the means of getting a cheap notoriety. Before the commencement of this century, and before the use of vaccine, smallpox carried off 3,000 per million of the population of London annually; at the present date, owing greatly to the general practice of vaccination, the average yearly death-rate from this loathsome disease is only 178 per million. In Sweden, as Sir Walter stated, the annual mortality from smallpox had fallen subsequent to the universal adoption of vaccine protection from more than 2,000 per million inhabitants to 173 per million. In Denmark the present death rate from smallpox is 130 per million living persons as compared with 3,667 per million previous to vaccination being made compulsory. The more vaccination was done, and the more completely it had been enforced, the greater had been the decline of smallpox. For instance, in the years 1847 to 1853, during which vaccination was permissive, the yearly average mortality from smallpox was 305 per million persons living. When it became compulsory, but not enforced by penalty, the smallpox death rate fell from 305 to 223 per million; and during the period 1872-1891, when vaccination was enforced by penalty, the annual mortality from smallpox amounted to only 89 per million persons. Sir Walter Foster also proved that in epidemics of smallpox the disease was lessened in severity by vaccination. As to protection from smallpox, he maintained that it was an undoubted fact, and specially instanced an epidemic outbreak at Sheffield. Out of a population of nearly 20,000 persons living in houses invaded by the disease only 25 per cent. of the vaccinated caught smallpox, while 75 per cent. of the unvaccinated suffered severely. Experience is even a more valuable argument than figures; and, having seen three great epidemics of smallpox, Sir Walter asserted from his own knowledge that he knew that vaccination was a great protective. He regarded the care of public health as the highest duty of the State, and in that view he recognised that with the advance of our civilisation the increasing complexity of our social conditions was less and less in the control of the individual, and that State aid must be more and more relied on. Finally, he believed that the motion which had been brought forward was injurious in its policy, and if carried would be injurious in multiplying enormously the baneful influence of a disease which was at once loathsome, disfiguring, and destructive. Dr. Farquharson also spoke against the motion. On a division, the votes were 70 in favour of the resolution and 136 against it, showing a majority of 66 against the resolution.

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EDITORIAL AND PUBLISHING NOTICES.

EDITORIAL.—The Editor begs to express his thanks to numerous correspondents, and to state that he will be pleased to receive any articles or correspondence coming within the scope of *HYGIENE*, reports of medical officers of health, items of general or local sanitary interest, newspapers (marked at the part to which it is desired to draw attention), &c.

PUBLISHING.—The terms of subscription not having been raised, although under the new arrangement fifty-two numbers instead of twelve will be sent out annually, all subscriptions now running will continue good for the original period.

Subscribers in arrear are requested to kindly forward their subscriptions without delay, as the keeping of small accounts involves considerable trouble and loss of time.

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ALCOHOLISM IN RELATION TO PUBLIC HEALTH, AND THE METHODS ADOPTED FOR ITS PREVENTION.

By HARALD WESTERGAARD, Professor of Political Economy in the University of Copenhagen.

(Concluded from page 23, May 20.)

If we calculate the influence of these causes on the table of mortality, we find that if these causes had not taken place, out of a certain number of males twenty years old, 12 per cent. more would reach the age of seventy-five than is the case now, and among working men even 15 per cent., and the mean duration of life would be increased by more than a year for an adult male person. Curiously enough, the mean duration of life for the two sexes, according to the Danish life-table, would under this supposition be nearly equalised. Immense as appear these losses of life, they are undoubtedly much greater in reality. It may be that the number of cases of delirium tremens and chronic alcoholism is approximately correct for the working class, and somewhat too small for the remainder. But, besides, we have numerous cases of liver disease (cirrhosis of the liver), and other diseases caused by drinking, not a few accidents due to the same cause, and, moreover, a considerable number of suicides connected with intemperance. Out of 100 male suicides in the towns, about 44 were notoriously given to drinking, the absolute number of these cases being 50 to 60 every year. A still more striking fact is the following observation from the town hospital in

Copenhagen. Out of 850 persons above twenty years of age treated for pneumonia 558 were males and 292 females, and of these 558 males more than one half—viz., 285—suffered from chronic alcoholism or delirium tremens (not to speak of those suffering from *delirium febrile*), whereas only eight female patients were attacked by these diseases. Subtracting these numbers, we find about the same number of male and female non-alcoholists. It is also an interesting fact that among the 285 male patients suffering from alcoholism and delirium one-fourth died, whereas among the others only 13 per cent. died.

It is thus not improbable that the real losses of life on account of drinking are much greater than they appear to be from an examination of the tables of deaths directly due to alcoholism and delirium; and these effects of strong liquors are still more striking if we compare them with the mortality statistics of the Norwegian capital, Christiania. Whereas in Denmark there is a small excise on spirits, Norway has a very high one; and whereas Copenhagen has an excessive number of publicans—one for every 300 of the inhabitants—the Norwegian capital has only one public-house for the sale of spirits for every 5,000 inhabitants. In Christiania, according to a communication to me from Dr. Berner, Inspector of Health, during twenty years only seventy-six deaths from alcoholism and delirium tremens have taken place, sixty-five among males, eleven among females; and there is reason to believe that the actual number of deaths from these causes is only slightly higher. Only two-thirds per cent. of deaths among adult males have been due to these causes, while in Copenhagen the corresponding number was 5 per cent.; and while the suicides in Christiania were only 2 per cent. of the deaths among adult males, the corresponding figure in Copenhagen was 4 per cent. These facts speak very clearly of the effectiveness of measures adopted in Norway, which have reduced the quantity of spirits consumed in that country to one-fourth of what it is in Denmark.

Bearing in mind the fact that in a population including total abstainers and temperates, as well as free drinkers and drunkards, the percentage of deaths ascribed to alcoholism, in the range of age from which insurance companies are principally recruited, is 5·4 per cent., we can understand that a temperance section of a life office does have such a favourable experience as stated above.

In most countries the statistics of the causes of death do not allow conclusions with regard to alcoholism corresponding to those for Denmark and

Norway. But at all events the statistical data sufficiently show that a great part of the civilised world is suffering greatly from the effects of alcoholism. The investigations of the Harveian Society make it probable that in London one-seventh of all adult deaths (males and females) is directly or indirectly due to the consequences of alcoholic excess. But even confining ourselves to the number of deaths stated by the official statistics—probably only a fraction of the real number—we find in England an enormous loss of life. The mortality from alcoholism in 1871-80 among males twenty-five to sixty-five years old was about 1 per cent. of all deaths—nearly 800 yearly. What an amount of disease and poverty, of moral and physical degradation, is represented by these 800 deaths! In Belgium the yearly loss of life from delirium tremens among males was 330 in 1870-89. Still greater have been the devastations of drinking in Switzerland. Prussia has a yearly loss of 1,100 males from delirium tremens. Undoubtedly we should find, if reliable data could be had, that chronic alcoholism and delirium tremens alone kill many thousands of men every year.

I may just in a few words touch upon the private efforts for diminishing alcoholism through public coffee rooms, temperance societies, bands of hope, &c. These efforts have undoubtedly saved many persons and families from moral, physical, and financial ruin; and they are necessary to quicken public opinion against strong drinks, and prevent the laws against intoxicating liquors from becoming a dead letter. Undoubtedly, homes for the cure of habitual drunkards, with or without State assistance, will prove useful when properly managed. Whether the efforts to ensure pure alcohol, with fines for the adulteration of alcoholic drinks, &c., will prove salutary, or perhaps only produce more refined forms of drunkenness, seems to me rather more doubtful. Much harm may be done by recommending a pure drink in order to diminish the consumption of an impure one; and as far as I know no definite statistical proof has yet been found that such a measure alone would tend to diminish intemperance. It has also been proposed to deprive drunkards of their freedom in financial matters, declaring them minors; and this, in addition to other measures, may help to create a public opinion against alcoholic excess, as well as the proposed alterations in the criminal laws, punishing crimes committed in a state of drunkenness as, or even more, severely as those committed in a sober state, not to mention laws and police provisions against drunkenness.

High excises are generally looked upon as an excellent weapon against alcoholism. But we must not forget that even a very high excise, as in England, does not prevent spirituous liquors from coming within the reach of anybody, so long as the number of public-houses is so exceedingly large as in this country. If a person has to go a long way to get drunk, and if he has in addition to pay a good sum for it, he will stop to think before going. Still, high excises seem to have some effect. The German law of 1887 has, for instance, reduced the consumption of spirits to a certain extent. But generally the reduction of the consumed quantity does not seem to correspond with the increase of the excise. An interesting expedient is the new State monopoly in Switzerland. Ten per cent. of the surplus is left to the cantons for counter-acting alcoholism. By regulating the price the monopoly acts like an excise, and the Government takes care that only unadulterated liquors are sold. The monopoly is reported to have had a good sanitary effect, and it has caused some decrease in the consumption of liquors.

In connection with excise and duties every effort is to be commended which tends to render the access to intoxicating liquors more difficult. Among these measures the three popular American systems deserve our attention—viz., the "Maine laws," "local option," and the "high licence" system. The first of these expedients, the prohibitory system, has been tried in Maine and some other American States. According to this system, it is prohibited to manufacture and sell intoxicating liquors, the only exception commonly being that liquors of "foreign produce" may be imported and sold in the original packages. But this exception is unjust, permitting the man who can afford it to order as much liquor as he likes, and nearly all reports agree in testifying to the perpetual violations of these laws. I shall only mention one curious fact from Maine, where the system was adopted in 1881. During the years 1867-86, 8,412 divorces of marriage took place, being probably several per cent. of the yearly number of celebrated marriages. Of these no less than 960, or 11 per cent., were caused by intemperance, combined or not with other causes. It thus seems that intemperate habits are rather frequent in this State. Curiously enough, the State of Massachusetts (where there is a considerable revenue from licenses) shows, under nearly the same regulations concerning divorces as in Maine, the same proportion—viz., 1,054 out of 9,853. It seems impossible to suppress the liquor traffic in the larger

towns. Between the Maine laws and the high licence system is an intermediate system, local option. According to this, it is left to the citizens of a village, town, city, or a larger district to vote for local prohibition. This system seems to work somewhat better than the Maine laws, and it may prove useful in rural districts, the control in small communities being more easily carried out; but in larger towns it is probably ineffective, tempting as it does to a clandestine liquor traffic. The third system—high licences—has been introduced in various States. Under this system licences for the sale of liquors can be taken out, but the fees are so considerable (for instance, five hundred or one thousand dollars yearly) that many small saloons disappear. In some cases the sale of liquors through grocery stores is entirely stopped (Illinois). This system is reported to work well by reducing the number of drinking saloons, thus lessening the opportunity for drinking. It is maintained that "the high licence system has thrown the liquor traffic into the hands of a more respectable class of dealers," and that those who pay high licences "help the authorities in the conviction of breakers of the law, under the fundamental principle of self-preservation."*

It is also to be recommended to limit the number of licences that may be taken out. This is the case with the Dutch law of 1881. Under this law the highest number of licences in a town with more than 50,000 inhabitants is one for every 500 inhabitants; in places with from 20,000 to 50,000, one licence for 300; and in smaller places one for every 250; and the licence is only given for one year. Though the limits fixed by the Act are very liberal, and seem to be maintained very leniently, it has reduced the number of places where spirits could be had very considerably. Still more effective have been the efforts in Sweden, Norway, and Finland. The numbers of bars have been gradually greatly reduced, especially in the rural districts; and in most of the towns the so-called "Gothenburg system" has been introduced. According to this system, adopted since 1865 in Gothenburg, all or most of the licences in a town are given to a company which is not allowed to pay more than a fixed rate of interest to the shareholders, the surplus being spent for the benefit of charitable institutions or applied to the purposes of local expenditure. The result has been a great reduction of the number of drinking bars. In Gothenburg the company, in 1865,

* Report on Liquor Traffic Legislation in the United States. Foreign Office, London, 1888, pp. 34-5.

took out forty licences, but at once reduced the number of saloons to twenty-three. The persons who manage the saloons get a fixed salary, and have therefore no inducement to encourage the customers in drinking. Moreover, there is a limitation of the hours during which the saloons are open, while other steps have been taken to prevent abuses. Undoubtedly this system—in connection with the great diminution of the number of bars in the rural districts of the country—has contributed very much to the conspicuous reduction of alcoholism in the three countries before mentioned. A very practical expedient is also the prohibition of the sale of intoxicating liquors at groceries and similar shops, and this provision ought never to be omitted where steps are taken to limit the number of saloons. And last, not least, it is highly desirable to regulate the opening hours of the saloons. This, as we have seen, is one of the features of the Gothenburg system. In England there is a reduction of the licence fee for those who close early on weekdays, and in the same country (and, I believe, also in Holland) there is a similar provision concerning the non-opening on Sundays. In some countries the opening on Sundays is altogether forbidden, or at least confined to certain hours. In Norway the sale of spirits is even forbidden from Saturday afternoon till Monday morning. Of course a population must be gradually accustomed to such restrictions; but where this has been the case, as in Norway, regulations like these seem to work very well. Undoubtedly they have contributed not a little to the great diminution of drunkenness in Norway, for it is on Saturday night and on Sundays that there is the greatest excess in drinking.

None of the recommended expedients are, of course, quite exhaustive. Every country will show alcoholism and delirium tremens as causes of death whether a high licence or the Gothenburg system is adopted, for drunkards will exist even where it is very expensive to get drunk and the opening hours of public-houses are very few. But the combined action of such measures will, at all events, effect a great saving of life and a great diminution of misery; and until it has been proved that prohibitory regulations (like the Maine laws) may be carried out without opening the door for smuggling and other abuses, total abstainers and temperate people might well agree in recommending some of the proposed measures, or all of them.

Lincoln Rural Sanitary Authority.—During the quarter ending on March 31, 156 births were registered. The number of deaths was 128, of which 29 occurred in the County Asylum at Bracebridge, making the average annual death rate for the whole district 19·8 per 1,000. Excluding the deaths in the County Asylum, the average would amount to 15·8 per 1,000.

A very extensive outbreak of diphtheria at Metheringham, Dunston, and Nocton, three parishes situated in the southern part of the Lincoln Union, forms the subject of a recent report by Dr. Charles Harrison, medical officer of health, who, having for nineteen years held that position, as well as being M.O.H. for the Lincoln Urban District, is able to bring long experience to bear on the question. Fortunately the epidemic was of a generally mild type, and only four cases—all of them infants—ended fatally. The outbreak would seem, at any rate at Metheringham, to have commenced through the defective sewerage. In 1885 sewers were laid in the principal streets of the village with the necessary connections. The sewage was conveyed to a depositing tank, and then discharged on to a field by means of properly-arranged carriers. But within a few years the system was allowed to get into disorder, and in 1890 Dr. Harrison had to report that the field was improperly managed, the carriers having been removed, thus preventing the distribution of the sewage. Complaints had been made, as might be expected, of offensive smells from the sewers and the field, where Dr. Harrison reports that, on the occasion of his last visit, the sewage was discharging from the precipitating tank into a grip in the field, and flowing at the rate of half a mile an hour into a pond at the lower end. This pond is about 18 yards in length and 9 in width, while it is 5 feet deep at the central portion. The field, as will have been gathered from the preceding account, was not used in any way that could produce a filtering or purifying effect upon the sewage. It would be interesting to know, in connection with this object-lesson on bringing the sewerage system into disrepute, whether the persons who allowed this disgracefully insanitary condition of things to come about opposed the introduction of the drainage scheme in the first instance. At Dunston, another Lincolnshire village which suffered from this outbreak of diphtheria, the drains carry away the sewage into the Beck. The consequence is that, although this stream is pure above the village, it is polluted below; yet many of the people in the locality have to depend upon the Beck for their domestic water supply. Here is

another reason for outbreaks, not merely of diphtheria, but of other zymotic diseases, *preventible* if only proper sanitary precautions were observed. Another frequent cause of disease in country places is the practice of retaining heaps of manure and other offensive refuse matter for long periods, often from one spring to the next year's planting season, in proximity to cottages and other houses. In wet weather a good deal of the stuff soaks in a state of solution into the ground round about the dwellings; in hot, dry weather the stench is often most objectionable on various grounds. We note a curious and significant fact mentioned by Dr. Harrison. Although since the adoption of the Infectious Diseases Notification Act (1889) many hundreds of bills have been distributed in the district explaining the requirements of the Act, notice of the existence of diphtheria was not sent by the head of the family in a single instance. This is worthy of the attention of the advocates of dual notification.

Leighton Buzzard Rural Sanitary Authority.—Population, 11,882; Medical Officer of Health, Dr. Sandell. The birth-rate for 1892 was 27·09 per 1,000; the death-rate was 15·82 per 1,000; zymotic death-rate, 0·92. The deaths, total 188, comprised 59 under five years of age, and 77 persons (nearly one-half of the whole number) over sixty years old. Influenza 11 deaths, whooping-cough 5, and diphtheria 3, were the chief zymotic diseases. Smallpox has visited this district, like many others, probably introduced by vagrants and men in search of work travelling southward on foot from the infected districts of the North of England; but no deaths were registered as due to it. Dr. Sandell dwells at some length upon the desirability of vaccination as a prophylactic against smallpox, and gives certain facts exposing the fallacies so industriously disseminated by anti-vaccinationists, whose arguments were, by the way, utterly demolished by Sir Walter Foster, M.P., M.D., Parliamentary Secretary to the Local Government Board, in the speech reported in last week's *HYGIENE*.

Dr. Sandell urges the Sanitary Authority to lose no time before placing the district in a proper condition of defence against the threatened visitation of cholera, and recommends, in accordance with the General Order concerning cholera issued in August, 1890, that the sanitary authority should give notice to owners and occupiers that they ought to put dwelling-houses into thorough sanitary condition, and cleanse cesspools and middens, using lime unstintingly where required; also that printed cautions should be issued against eating unripe or unwholesome fruit, &c., or drinking water of a suspected character without previously boiling it. Dr. Sandell also

says a word in favour of establishing public baths at Leighton.

One of the large parishes in the Leighton Buzzard rural district, Linslade, with a population of 2,000, has—probably as the consequence of an excessive sickness and death-rate from zymotic and other causes—formed itself into a parochial committee for the better carrying out of certain sanitary and parochial measures, though subject to the Rural Sanitary Authority. This may be regarded in some degree as anticipating the Parish Councils Bill now before Parliament.

Stourport.—The report which we have before us for the year 1892 is of melancholy interest to us, seeing that it was the latest literary production of Dr. Cadogan-Masterman, for a considerable period a valued contributor to *HYGIENE* and various medical journals, who succumbed to a long illness in the early part of this year.

The births registered in this little Worcestershire town were 98 in 1892, as against 117 in the previous year, showing an annual birth-rate of 27·58 per 1,000 inhabitants in the last twelve months, compared with 33·16 in 1891. This falling off Dr. Masterman attributed to a corresponding diminution in the marriage-rate. The death-rate for 1892 was 17·74 per 1,000, much lower than might have been expected, seeing that an epidemic of influenza in the early part of the period under notice caused a considerable number of deaths; but not a single death from any cause occurred during the months of August and November, a noteworthy circumstance in a population of about 4,000. Referring to the great mortality which was recorded in the early part of the year, Dr. Masterman speaks with unhesitating voice against the employment at that period by the local Medical Aid Association of "an utterly incompetent and unqualified assistant." "The result included," he pointedly observes, "the preventible deaths of at least five persons in the prime of life; and the amazing point is that our criminal law should permit this wholesale sacrifice of human life and the infliction of so much suffering on widows and orphans without the slightest responsibility being attached to the individual." We cannot understand what the registrar of deaths can have been about to accept—presuming that he did—certificates of death signed by this "utterly incompetent and unqualified" individual. Nor can we understand how the Medical Aid Association could have been so blind to its own interests as to appoint such a person to attend its sick members. If the reason was that his services were obtainable at a trifle less than the advice of a qualified medical man, then they must by this time have begun to realise the force of the homely adage, "Penny wise and pound foolish."

As regards arrangements for the removal and reception of cases of infectious disease, the Stourport Authority have made satisfactorily working terms with the Kidderminster Sanitary Authority.

The infantile mortality is far greater than it should be, for one-third of the deaths registered were those of children under five years of age.

*PATENT MEDICINES.**

By the EDITOR.

NO. III.—CLARKE'S BLOOD MIXTURE, COLLIS BROWNE'S CHLORODYNE, AND OTHER OPIATES AND ANODYNES.

AMONGST the correspondence which these articles have elicited we have received the following letter from a gentleman at Shrewsbury :—"I should like to ask you a question about quack medicines, which perhaps you will kindly answer in an early number of *HYGIENE*. Of course I do not dispute what Dr. Taylor has said as to the probable effects of taking Clarke's Blood Mixture ; but what do you say to the case—which I cannot now find—mentioned in Clarke's advertisements, of a pauper who cured several holes in his legs by taking two or three bottles of the blood mixture ? Did it never happen, or, if it did, how was it that the doctors could not cure him ?"

Like our correspondent, we cannot find any particulars of the case upon which he seems to think that the reputation of this "world-famed" specific for all the ills that trouble humanity must stand or fall. Advertisements occasionally furnish much amusing reading, but we must confess that when we come to a quack advertisement we commonly pass it by. It may be that we get tired of the monotony of successes all along the line, or that we are too matter-of-fact in our views to believe in modern miracles ; consequently, we have not made even in print the acquaintance of the pauper referred to. Our correspondent will therefore, we trust, see our inability to discuss upon its merits a case of which we possess no knowledge whatever. Besides, our correspondent is somewhat wide of the mark. Our object in writing this series of articles

is to urge the necessity of altering the present system of issuing Government stamps for quack preparations, seeing that a very large proportion of the community entertains the mistaken notion that the words "Protected by Government Stamp" convey some sort of guarantee as to the value of the ingredients. Unfortunately the reverse of this is the fact ; and hundreds of thousands of gallons of quack medicines, containing drugs potent for harm, are under the ægis of the Government stamp distributed throughout the length and breadth of the land. Further, we showed in our article (May 20th) that the basis of Clarke's Blood Mixture is iodide of potassium, a drug of such powerful action that, in many persons, although administered in very moderate doses, it produces most distressing symptoms, while it should never be given for any length of time except under proper medical advice and supervision. When this general statement has been refuted, we shall be quite ready to deal with individual cases alleged to have been cured. If the iodide of potassium were as innocuous in its nature as the burnt sugar with which the Blood Mixture is flavoured and coloured, there would be admittedly less reason for these strong remarks made by Professor A. Swaine Taylor, F.R.S. : "The sale of medicines of this kind should be strictly prohibited, unless the bottles containing them were issued with a caution label setting forth their true composition. It is only reasonable that a person should know what he is purchasing." Various Continental countries have recognised this necessity, and have framed laws prohibiting the sale of any alleged remedies, of which the composition is not publicly made known.

According to the Sale of Poisons Act, it is specially laid down that certain regulations must be observed with respect to the selling of different poisons, the penalty for the breach of these regulations being £5 for the first offence and £10 for each subsequent offence. It is enacted that on the sale of any of these poisons, the box, vessel, or cover in which it is contained must be labelled with the name of the article, the word "poison," and the name and address of the vendor. With respect to poisonous vegetable alkaloids and their salts (hydrochlorate of morphia, for example), no such article may be sold to any person unknown to the seller unless introduced by some person known to the seller, and upon every such sale the seller must, before delivery, enter in a book to be kept for that purpose the date, the name and address of the purchaser, the name and quantity of poison sold, and the purpose for which it is required, and must also

* Some of the articles constituting this series have already appeared in *HYGIENE* when published as a monthly magazine, and were reprinted in two volumes. But as one of these—Vol. I.—is out of print, we propose, at the request of many readers, to commence a new series, as much of the matter will doubtless be fresh to the great majority of the readers of *HYGIENE* in its altered form. New reports and analyses will appear from time to time. No. I. (May 13th) included :—Patent Medicines ; Patent Medicine Law ; Mattei's Electro-Homœopathic Remedies. No. II. (May 20th), Clarke's Blood Mixture.

cause the purchaser and the person introducing the purchaser to sign their names therein. Yet the provisions of this important Act are openly violated by the sale of preparations containing these poisons and bearing the Government patent stamp. Take the case of chlorodyne, for instance. The analysis of the widest-known preparation bearing this name, sold as Collis Browne's Chlorodyne, was made for us by Mr. A. W. Stokes, F.C.S., F.I.C., and that gentleman reported that in an ounce bottle he found six drachms of chloroform, a small quantity of Indian hemp, and six grains of hydrochlorate of morphia, with some unimportant ingredients. An analysis published some years ago, by Dr. Wynter Blyth gave in addition to the various poisons enumerated by Mr. Stokes twelve drops of Scheele's prussic acid in a rather larger quantity of chlorodyne. Now, supposing that the prussic acid is at the present time omitted, what conclusion can we come to as regards the two poisons in largest proportion, namely, chloroform and hydrochlorate of morphia, both of which are of course included in the schedule of poisons coming under the Act to which we have referred? The dose of hydrochlorate of morphia, when administered medically, is one-eighth of a grain to half a grain, of chloroform three to ten drops. In one ounce of Collis Browne's Chlorodyne, by Mr. Stokes' showing, there would be the equivalent of twelve full doses of morphia and thirty-six full doses of chloroform. If a person wanted to buy six drachms of chloroform, he would very properly find considerable difficulty in procuring it; but put that amount into a bottle with other poisons, clap on a Government three-halfpenny stamp, and it can be bought with almost as much ease as the harmless treacle with which it is flavoured!

The quantity of this and other chlorodynes sold is something enormous, far surpassing the imagination of anyone who has not given attention to the matter. Taken, at first, in small doses by the unhappy persons who drug themselves with chlorodyne, the victims become gradually habituated to its use, and many fall, sooner or later, a prey to the craving for morphia. This craving once established, they become as completely slaves to the practice of swallowing chlorodyne in extraordinary quantities as a Chinaman does to smoking opium, or a Malay to taking Indian hemp, with the inevitable consequence that physical, mental, and moral deterioration must follow.

A druggist in business at the West End recently mentioned to a friend of ours numerous instances of morphia-craving which had come under his own

cognisance. One young woman purchased from him in a fortnight forty-two ounces of chlorodyne, the whole of which quantity she herself consumed. In another case a man regularly bought every day for years a 4s. 6d. bottle. In a third a lady customer ran up a bill for chlorodyne amounting to £13 in six months, in addition to what she paid for at the time of purchase. But even this last case seems moderate in comparison with that of the wife of a well-known actor, who in six months became indebted to her chemist for £90 for chlorodyne, a matter which the circumstance of the bill being disputed brought into public knowledge.

The revelations made at the inquest on Dr. Lyddon, in what was styled the Faversham Mystery, showed how feeble in body and mind the votaries of morphia-drugging become; while, in a *cause célèbre* in Paris, it was brought out in evidence that the unfortunate lady concerned had expended more than 25,000 francs (£1,000) upon the purchase of morphia, with the most baneful results to her physical and mental condition.

HYGIENE IN ITS APPLICATION TO THE ARRANGEMENT OF BUILDINGS.*

By P. GORDON SMITH, F.R.I.B.A., Architect to the
Local Government Board.

(Continued from page 20, May 20th).

I have thus far endeavoured to show that the health of the dwellers in sundry kinds of buildings depends to a great extent upon the arrangement of the building in which they live, or at any rate that the arrangement of building may influence their health conditions. In the case of general hospitals, as I have said, this is very generally recognised, since the conditions under which a patient may be maintained during his stay in hospital may either expedite or retard his cure and discharge. But if it be admitted that certain good hygienic arrangements of building are really useful for the *sick*, it can scarcely be denied that those same arrangements are at least desirable for those who are reputed to be in health, and might be useful as auxiliary means of maintaining a certain degree of healthiness. The value of the hospital arrangement of building, or of some modification of it, in the case of barracks, prisons, asylums, and workhouses, as an agent for the prevention of disease, is, as I have shown, now very generally recognised, but I notice that very many residential

* A paper read at a meeting of the Architectural Association.

institutions intended to receive large numbers of persons reputed to be in health are still frequently erected on an obsolete and defective plan. This is specially the case with charitable institutions of all kinds, and particularly so with institutions for the reception of children.

Nearly all institutions which depend for their very existence upon voluntary support are more or less crippled for want of funds, and their usefulness often leads those who have the management in their control to endeavour to do more than the available funds will permit to be done properly. Thus we find schemes are frequently promulgated for extending or re-building all sorts of institutions, such as orphanages, asylums for idiots, the blind, the deaf and dumb, waifs and strays, and all kinds of schools, in regard to which the chief aim of the promoters is to so enclose a building as to afford shelter to the largest possible number of individuals which the available money will permit.

Now, for the class of institution to which I refer, there is, so far as I am aware, no code of rules for the guidance, in a hygienic sense, of those concerned. Hospitals have been written about almost *ad nauseam*; barracks are designed and built more or less directly under Government control. Lunatic asylums to a great extent follow hospitals, and come in for the criticism of a responsible department of Government. So too do workhouse buildings of all kinds, and prisons are dealt with directly by Government. Public elementary schools again come in for official criticism, but residential schools (with the exception of those for pauper children) and charitable institutions of the kind generally are subject to practically no superior control whatever in regard to the arrangement of building. Nor is there much literature upon the subject. Schools so far as education is concerned—that is to say, so far as regards the school rooms, class rooms, and conveniences—have been written about by the architect to that department, and an official paper bearing on the subject is issued by the department. The Association of Medical Officers of Schools have dealt with certain questions of school hygiene as concerning their own responsibilities, but viewed as a whole there is very little to assist either the architect or his client in all that concerns the *arrangement* of these institutions, and especially the residential institution of the class.

As a result of this absence of any definite principle in the arrangement of such buildings, we find all sorts of plans are adopted, some good, some indifferent, and some bad—very bad.

We accordingly find colleges, and institutions intended as residential places for numbers of young persons reputed to be in good bodily health, though in some instances they may be blind, or deaf and dumb, or of weak intellect, or more or less destitute or deprived of parental care (as orphans), arranged upon all sorts of plans, the residential rooms being arranged sometimes even over the domestic offices, round the four sides of a quadrangle, or in buildings several storeys high in the form, or plan, of the letter E or the letter H, and of a size intended to hold hundreds of persons.

The institutions to which I refer, being commonly intended for young persons, have, I think, taught lessons which the architect, among others, would do well to study. Poor Law institutions for children have needed and have received a very large amount of attention, and have been observed by many experts. The child may be regarded as a sensitive instrument which indicates very promptly and with much precision every variation of the health conditions in which he is placed; and the experience of the large Poor Law schools is most instructive.

Some thirty or thirty-five years ago the objections to keeping the children in the workhouses, especially in the metropolis, came to be recognised, and moreover the space they occupied began to be wanted for adults, and accordingly they were in many cases removed to separate school buildings, residential of course, on large open sites outside the towns, and arranged on what was considered the best plan. Notwithstanding, however, all the advantages under which these new institutions were placed, the result, after long and often very careful trial, was far from encouraging. Ophthalmia, diseases of the skin and scalp, and other troublesome disorders prevailed in these schools to an extraordinary extent, and in some instances seemed irremediable. Specialists were called in, enormous expense was incurred in medical advice and treatment, but with only partial or temporarily successful results. As regards ophthalmia, Mr. Nettleship, the eminent oculist, who was consulted in regard to all the metropolitan pauper schools, numbering many thousand children, has asserted that this disease “is the touchstone of the general healthiness of an institution,” and he further remarks that “where many persons are herded together, their eyelids show sooner and more certainly than any other part if the conditions of vigorous health are not complied with. Dr. Mouat, again, who had wide experience in this class of institution, says: “The stunted, impaired

general health and feeble bodily powers of too many of these children are not removed or corrected by massing them together in large buildings or groups," and he points out that "there is a large and possibly increasing factor of imbecility, idiocy, and nervous disorder generally, and some of the more immediate results of scrofula at the critical periods of life, which may be due to the insanitary conditions" inherent to the aggregation of large numbers of children in huge buildings.

It is this *aggregation* of human beings in vast buildings to which I wish to direct special attention. The evil results due in a great measure to it have been particularly noticed in Poor Law institutions, but those same evil results are not by any means unknown in other institutions. Ophthalmia has been found in them, though perhaps in a less aggravated form, and tendency to other disease is commonly experienced in them; but its severity is less by reason probably of a variety of circumstances, such as the superior condition under which the children in those other institutions are reared before being sent to school, the periodical change the children enjoy in the three usual annual vacations, and so forth. These large institutions, with vast aggregations of children under the one roof and in the one atmosphere, have come to be regarded as a failure on hygienic grounds, and, as with hospitals, sub-division of building with comparatively small groups of human beings is recognised as one of the chief means of maintaining a proper standard of health among the occupiers of the institution. So important is this arrangement of building regarded that it was determined a few years ago to cut up the huge main block of the Central London Schools at Hanwell. That building, originally designed to be partly three and partly four storeys high, with a length of frontage of some 650 feet, was, under the superintendence of Messrs. Henry Jarvis and Son, the architects, sub-divided into five distinct blocks. Gaps 20 feet wide, and open from the ground upwards, were cut through the building in four places, so that the number of children accommodated in it was not only reduced, but the children were completely sub-divided into comparatively small groups, and the whole arrangement became more assimilated, in principle, to that now commonly adopted in the construction of large hospitals.

This principle of sub-division of the children into small groups is by no means new. In Switzerland the family system of schools was introduced by Pestalozzi as long ago as about 1760, and the Reforma-

tory School at Mottray in Belgium, on a similar system, has been in operation for about fifty years. In England there are several examples of the system which have been in existence for a long period, and the condition of the children in them has been carefully observed and noted. Some fifteen years ago the suitability of the home or cottage system of training and educating the children of the poor was the subject of an investigation by my then colleagues Dr. Mouat and Captain Bowly, R.E., and their report, which was subsequently published, shows that, while the system was generally adopted with the primary object of securing greater individual attention to the children for purposes of moral training and education the hygienic advantages were very considerable indeed. And since the date of that report, as indeed before it in several instances (chiefly in South Wales), a considerable number of Poor Law schools on the cottage home system have been built, and the result so far as health is concerned has been highly satisfactory. There are, as may be expected, many varieties of what is known as the cottage home arrangement of school. Some would be more correctly described as on the separate block system, since the number of children in each "home" is large, there being in one or two instances as many as fifty children in each house, and in one—the Philanthropic Society's Farm School, near Redhill—even sixty; but the cottages at that institution are scattered over a very large estate of some 300 acres, and the school is a reformatory for boys who are all of an age greater than that of the children in ordinary schools and orphanages. The houses of the London Orphan Asylum at Watford hold fifty children each, as do also the "homes" in a few of the larger Poor Law schools on this system. The houses of the Little Boys' Homes at Farningham hold thirty children each, and so do those of the Birmingham Poor Law Cottage Homes, and some others; the Leicester guardians adopted the excellent plan of building cottages for their pauper children on different scales, some holding sixteen children, some twenty, and some twenty-four children. In South Wales there are several Poor Law schools on this system, where the imitation of the natural family is approached more closely, the number of children in each cottage being only ten or twelve; a plan which obtains also in some excellent charitable institutions of the kind, such as Dr. Barnardo's Village Homes at Ilford, and the Princess Mary's Cottage Homes for girls at Addlestone, and others. This system of *segregation*, as distinguished from the common one of *aggregation*, is of the utmost

hygienic importance where children are concerned. At some cottage home schools a marked improvement in the health of the children has been noticed on their removal to them. Thus, in Dr. Barnardo's thirty cottages, it is reported in 1878: "A great improvement in the general health and appearance of the children has taken place during the last twelve months, and this is attributed by the governor entirely to their removal from the building where they were formerly all housed together to the new cottages." And I am inclined to attach importance to it not only in the domicile of the children as a whole, but in the individual rooms where they are assembled, in the dormitories, in their day and play rooms, and especially in their school and class rooms. The question of the number of children who may properly be assembled together for several hours in a school-room seems to have never been considered in its hygienic aspect, the main point recommended for attention in planning a schoolroom being (to quote from an official document) "to seat the children in the best manner for being taught." Mr. Nettleship, in noticing this tendency to aggregation of unlimited numbers of children in a large school where there was prevalence of ophthalmia, observes that hardly any attempt had been made to treat the children otherwise than collectively. In the official document already referred to, it is pointed out generally that the observance of sanitary laws is as important in a school as in a hospital; hence it would seem reasonable to assume that children cannot be aggregated in a school-room with impunity any more than sick persons can safely be aggregated in a hospital ward. The comparatively short space of time at a stretch that children are kept in a school-room may cause the prejudicial effects to be less readily observed than in the case of patients continuously occupying a sick ward for several weeks, but that evil results ensue from massing large numbers together in school-rooms must, I think, be admitted; and those evil results will be demonstrated with more or less rapidity, and will be intensified or diminished according to a variety of circumstances, such as the general health-condition of the children, the amount of floor-space and cubic-space allotted to each child, and the efficiency of the ventilation and the warming of the room.

In view of these considerations, I look with no small anxiety at the enormous aggregation of children in many of our public elementary schools, where they assemble not only in large numbers in their several school and class rooms, but where those rooms are

piled up in several storeys, and arranged so that, in many instances, the vitiated air is equally diffused throughout the entire building by means of the stair-cases and corridors. I cannot but think that in time to come these huge school buildings will be the subject of condemnation on account of their arrangement being found to be defective on hygienic grounds. Already the large increase of diphtheria that has taken place in England since elementary education became compulsory in 1870 is attributed in some measure to the association of children in vast numbers in the public elementary schools, and over and over again it has been ascertained that the village school or the board school has played the chief part in fostering and encouraging local epidemics.*

Hence if the aggregation of children is a source of evil in those day schools where the children assemble for a few hours only at a time, how much greater is likely to be the evil from similar aggregation where the children pass the whole twenty-four hours of every day in schools and orphanages of the residential type.

(To be concluded in our next number.)

ON HAY-FEVER, HAY-ASTHMA, OR SUMMER-CATARRH.

BY THE EDITOR.

(Continued from page 28, May 20th.)

THE fourth group of symptoms are those connected with the head. The most prominent of these is the headache, sometimes only slight, but more frequently severe, and situated either at the forehead, which is hot and burning (when it may be mistaken for frontal

* Dr. Thorne in his "Progress of Preventive Medicine" (pages 43 and 48) records that, in an investigation he made into an outbreak of diphtheria in Essex, "the incidence of the disease upon children from three to twelve years old was about 50 per cent. greater upon those known to have attended school than upon the remainder." He also quotes from Mr. Power's report on an outbreak at Pirbright, "on four successive occasions while the village school was open, well-marked diphtheria occurred among the scholars, . . . and this although the school premises were free from recognisable sanitary defects; and although the school was not, after its first closure, re-opened until the disease had seemed extinct in the parish and careful measures of disinfection had been used." Dr. Thorne further points out that the re-opening of the school appeared on each of the four occasions to be responsible for giving a *serious quality* to the resulting diphtheria; and he adds that there are grounds for believing that the aggregation together of cases of diphtheria and of allied throat affections under circumstances such as those obtaining in elementary schools constitutes one of the conditions under which a form of disease of particular potency for spread and for death may be, so to speak, manufactured

neuralgia), at the back part, or over the whole of the head. The pain is very often brought on and increased by the paroxysms of sneezing, and, assuming a neuralgic character, may extend along the course of the facial nerve, or into the external auditory passage of the ear. The patient complains of a constant feeling of irritation and itching about the forehead, the nose, the chin, and the ears. Sometimes he also suffers from giddiness, loud ringing or buzzing noises in the ears, and other symptoms of congestion of the brain, especially if the paroxysms of sneezing have been very great.

The fifth group of symptoms are situated in the whole extent of the mucous membrane of the larynx, extending also to the bronchial tubes, and the patient is affected by bronchial catarrh, asthma, and cough, and more or less dyspnœa. In some cases the cough is comparatively insignificant, while in others it is very severe and loud, and may then be accompanied by expectoration, which is occasionally copious, and in rare instances streaked with blood. Not unfrequently a sensation of irritation is felt in the larynx, or in the trachea, and there is a feeling of weight and pressure within the chest; the patient's voice becomes muffled and hoarse, and in some instances I have observed partial loss of voice. The difficulty of breathing is occasionally very distressing, and wheezing, sibilant sounds may then be heard throughout the greater part of the lungs. These attacks of dyspnœa are more strongly marked towards evening, and continue during the whole of the night. It is in this class of cases that the patient's sufferings are the most severe. Generally after having been asleep for one or two hours, or a longer period, the patient wakes up suddenly, gasping and struggling for breath, as if every moment would be his last; his eyes are protruded, his lips and face become livid, and he eagerly throws open the doors and windows of his room in his ineffectual efforts to get more air, until at last he sinks down completely exhausted. When he falls asleep, his slumber is short and restless, and he is again aroused, after a brief interval of repose, by the same painful constriction across the chest and difficulty of breathing. When the asthmatic symptoms are well marked, the dyspnœal paroxysms come on earlier at night, or in the evening, and continue until the next morning.

The regular periodicity of the asthmatic attacks in relation to the hours of sleep is remarkable. A patient who is subject to the asthmatic paroxysms three hours after retiring to rest will experience their recurrence at 2 a.m., supposing him to have gone to bed at 11 p.m., but if he delays going to rest till a later hour, say 1 a.m., the paroxysms will very probably not come on till 4 a.m.

The sixth group, in which are comprised the general symptoms, are those of catarrhal fever, together with the disturbance of the nervous system. The pulse is not greatly increased in frequency during the day, but towards evening it becomes much accelerated, and the number of beats may amount to as many as one hundred or more in the course of a minute. Shivering and cold perspirations come on alternately after the most severe attacks of coughing and sneezing. The patient is uncomfortable, restless, and unfit to attend to his ordinary avocations, and complains of weariness, defective memory, inability to fix his attention upon what he is doing, and heightened susceptibility to external impressions. There is a sense of general irritability, and the least noise, draughts of cold air, and various trifling inconveniences, which at other times would pass unheeded, disturb and distress the patient very much; while his sufferings are too often increased by the want of sympathy and apparent disbelief of the severity of his ailment, shown by persons about him, who, enjoying perfect immunity themselves, cannot form any adequate idea of the patient's sufferings. The digestive organs are not often greatly impaired; when they are, loss of appetite, furred tongue, acid dyspepsia, with either constipation or diarrhœa, will be observed. The urinary secretion is usually scanty; and the crisis of the disorder is often accompanied by a copious deposition of lithic acid gravel. The skin is hot and dry before the paroxysms come on, and after they have passed off it becomes clammy, moist, and sometimes bedewed with copious perspiration. Herpes and urticaria are two forms of skin disease which occasionally make their appearance during the progress of the affection. The herpetic eruption is generally situated about the lips; but I have seen many cases in which the patients suffered considerably from *herpes zoster*, or shingles, situated upon the back. During the period at which the eruption was fully marked a decided remission was experienced in the catarrhal and bronchial symptoms previously present; the latter returned, however, almost as severely as before, as the eruption began to disappear.

A patient of mine, a lady, informed me that about a fortnight before the commencement of her annual attack of hay-fever an eruption of numerous red spots made its appearance upon her body and arms. When the hay-fever set in this eruption soon disappeared.

(To be continued).

Smallpox at Burnley.—The *Daily News*, reporting on the recent epidemic says: "Fortunately many of the cases are mild, the only bad ones being found among those persons who had not been vaccinated."

A YARN ABOUT A BOIL.

THE crowd of loafers in the little country store at Spurville had just listened with great interest to Job Landers' account of his recent sufferings from a large boil on his leg. Various comments expressive of sympathy were offered by one and another, but these were suddenly interrupted by Andrew Criler, who began :

"A bile's a mighty mean thing fer a man ter have, 'n' no mistake." After a short pause he continued :

"I don't s'pose I shell ever furgit one 't I had more'n twenty year ago. 'Twas on my right arm jest above the elbow, 'n' I couldn't do anything ter speak of for nigh onter three weeks. How it did ache ! Why ! I couldn't sleep a wink no more 'n if somebuddy 'd been borin' right inter that arm with an auger ; 'n' it swelled up so's 't I couldn't git my shirt sleeve down over it. I had ter keep it wrapped up in an old shawl of Lyddy's all the time.

"It got so bad finally 't I jest couldn't stan' it any longer ; so I went over ter old Doctor Coblet 'n' got him ter look at it.

"'Wal,' says he, 'that's a pooty bad arm, but it ain't ready ter be opened yit. Ye'll have ter come agin in a few days.' So home I went, mad enough ter kill. I jest walked the floor all that night, 'n' I shouldn't wonder if I said some bad words 'long to'ards mornin', fur that bile did ache wuss 'n any toothache.

"Wal, next day I went to old Coblet agin, 'n' told him he'd jest got ter open that bile right off. So the old feller cut it open, 'n--wal, mebbe I didn't holler ! I thought for about a minute that I'd give up the ghost. Wal, the bile got well pooty soon after that, but it left a big scar 't I s'pose I'll alluz kerry."

"Let's see it, Andrew," cried the crowd, anxious to behold even the traces of so famous a "bile."

Nothing loth to display the memento of his past sufferings, Andrew pulled off his coat and drew up his right shirt sleeve. No sign of a scar or blemish of any kind was to be seen.

A trifle disconcerted, he exclaimed : "Thar ! it's queer I sh'd furgit 'twas on t' other arm, but I guess 'twas."

Up came the other sleeve, and the crowd again pressed forward to see the scar. Alas ! this arm was as unblemished as the other.

Andrew tried to look perfectly dazed at this result, but a moment later, with a twinkle in his eye, he said : "Wal, I vow ! it is queer how a man's mem'ry sometimes deceives him, ain't it ? I remember now jest ez plain 'z day that bile was on brother John's arm."

REVIEWS AND NOTICES OF BOOKS.

IMPEDIMENTS OF SPEECH : Stammering, Stuttering, Lispings, etc. By W. Abbotts, M.D. Twelfth Edition. London : Beaumont and Co., 39, Southampton-street, Strand, W.C. Price 2s.

It seldom happens that a book upon a special subject, like the numerous forms of impeded or defective speech which mar the happiness and blight the prospects of many thousands of people, passes into a twelfth edition ; and this fact alone says more than a lengthy article would do as regards the book under notice.

The author, in his preface, points out the error of dealing with all cases alike, without due regard to cause, age, temperament, and other circumstances which must necessarily influence the nature and intensity of the affection ; and throughout the work he inculcates the necessity of treating cases upon the rational principle of adapting the treatment to individual requirements.

THE NEW DISINFECTANT—IZAL.

IT would be impossible to announce the discovery of a new disinfectant at a more opportune period than the present, when we have epidemic outbreaks of smallpox, scarlet fever, diphtheria, and other zymotic diseases in various parts of the United Kingdom, and the direst pest of modern times, cholera, within easy reach of our shores, and ready to slip in, despite the utmost and unceasing vigilance of our port sanitary authorities. And particularly welcome, too, is this new disinfectant and antiseptic when we take into consideration all the admirable qualities which Izal must be credited with.

Unfortunately many chemical compounds possessing undoubted antiseptic properties are either dangerous to life, destructive of vital tissues, or almost inert under certain conditions. Now Izal is free from any of these great drawbacks, and is absolutely trustworthy on all occasions and in all circumstances. Harmless in its general effects, it has a potential influence in the destruction of germs, under whatever name they may be spoken of, and in removing danger of infection.

Dr. Letheby, formerly medical officer of health for the city of London, pointed out, in his able paper on Disinfectants (read before the Society of Medical Officers of Health), that where a disinfecting agent is employed, which is of doubtful or uncertain action, "the result is not merely a waste of materials and a loss of valuable time, but it is also a serious danger to the public." Where such important

Profitable and Indisputable.—A provincial daily newspaper lately contained the following peculiar advertisement :—"Wanted, an agent to undertake the sale of a patent medicine. The proprietor guarantees that it will be profitable to the undertaker."

issues are involved, the warning which he uttered cannot be too strongly emphasised, namely, that "we should be most careful in the selection of disinfectants, using those only which are known to be effective." We shall presently see how fully Izal fulfils the requirements which were laid down by a writer of Dr. Letheby's high position as a practical sanitarian; but we will first enter into a description of the remarkable disinfectant under notice.

One of the most interesting features of modern chemistry is the wonderful part played in the arts and sciences by chemical compounds long regarded as worse than valueless, and discarded and thrown away, no matter at what cost. Take, for instance, the coal-tar series of compounds, giving the brilliant colours now familiar to everyone. Again, let our readers regard the case of glycerine, a substance of immense utility in medicine, surgery, and pharmacy, as well as in many manufacturing processes; why, the words we are now writing could hardly come before our readers without the aid of glycerine for the purpose of lubricating the printers' rollers. Yet, forty years ago—indeed, less—glycerine was discharged into the river Thames by tons, so anxious were manufacturers, who found themselves hampered, as they then thought, to get rid of the *waste* product. Waste, indeed, it was, as evidenced by subsequent discoveries, though not in the sense in which the term was then applied. The late Dr. Andrew Wynter wrote an entertaining and instructive book, in which, by examples such as the two we have just given, he supported the argument that nothing made is really waste, and that every product has its value and its purpose if we will only take the trouble to find out what they are. Had the worthy doctor lived till now, he might have enriched his illustrative series of valuable bye-products by including Izal.

The discovery of this disinfectant is due to Mr. J. H. Worrall, F.C.S., F.I.A., the chemist to the well-known Thorncliffe collieries, situated near Sheffield. While making investigations into the nature of the bye-products derived from the Thorncliffe Patent Coke Ovens, erected at the gasworks supplying the extensive range of buildings, Mr. Worrall discovered that one of these products was a previously unknown oil, possessing chemical properties intermediate between those of the benzine and the paraffin series. From this oil he extracted a substance found to possess antiseptic properties superior to even pure crystallised carbolic acid. Its boiling point is higher than that of pure carbolic acid, and the substance itself is insoluble in water, but readily mixable with water, its minute particles being held in suspension, and constituting a milky-looking emulsion. These two last-named qualities are of special importance, as prolonging the disinfectant action.

Speaking further as to the antiseptic power of Izal, we may quote from the following report by the lecturer on Physiology at one of the chief metropolitan medical schools:

"Izal diluted in the strength of only 1 in 200 completely destroyed in five minutes the vitality of the germs of cholera, diphtheria, typhoid fever, pneumonia, anthrax, and glanders.

In the same degree of dilution it also destroyed in five minutes the microbes which cause putrefaction and the formation of abscesses. In a still weaker dilution (1 in 300) Izal killed the germs of scarlet fever and erysipelas. Its disinfecting properties were also tested with satisfactory results on morbid materials derived from various infectious disorders—diphtheritic membrane, the discharge from the bowels of patients suffering from typhoid fever, matter from festering sores, the discharge of glanders, etc.—with entire success."

The same high scientific authority states that careful experiments were also made for the purpose of ascertaining whether Izal had any injurious effect upon the human system, tissues, or functions, with the result that it proved to be wholly innocuous.

In addition to the value of Izal as a disinfectant, mention must not be omitted of the great benefits accruing from it as an antiseptic dressing for wounds, cuts, sores, and many skin diseases, and, as a styptic, having a marked power of checking bleeding, while it exerts a generally salutary influence through the properties already described. All of the excellent qualities which Izal possesses, together with its innocuous character, combine to make it a popular remedial agent and safeguard against infectious disease, one that should be always at hand in every household. Its inexpensive price brings it practically within the reach of everyone. We strongly recommend Izal.

NEWS AND NOTES.

Cholera is now existent over a very large portion of the Russian Empire, principally in a sporadic form. Unfortunately the official bulletins are drawn up with the design rather of concealing than of disclosing the real state of things, so that they are not reliable. In the district of Podolia, for instance, the epidemic is raging to a serious degree, yet no mention is made of this fact in the official returns. Since the 22nd of March more than fifty deaths from cholera have occurred at Lorient, on the north-western coast of France. From Quimper, another town of Brittany, an alarming outbreak is reported.

* *

The Water Supply at Chicago is not so satisfactory as it should be, particularly in view of the enormous concourse of people attracted thither by the Exhibition. It appears that the chief source of the city's water supply is Lake Michigan, into which much of the sewage of Chicago finds its way. Moreover, the water undergoes little, if any, filtration or other purifying process before being delivered to the houses.

* *

London Government: As It Is and As It Should Be, is the title of an important and instructive lecture delivered on May 19 at St. James's Hall, Piccadilly, before a crowded

and representative gathering, including M.P.'s, members of the London County Council, School and other Boards, guardians, vestrymen, and others interested in this comprehensive subject, involving, as it does, the local management and administration of a population enumerated in the 1891 census at 4,231,431, occupying 557,134 houses, and covering an area of 120 square miles. The subject is one of such magnitude, and embraces so many details, that few men would have attempted, much less would have succeeded, in dealing with it in the moderate space of a single lecture. Fortunately it was in good hands, and the lecturer, Mr. Harry Wilkins, barrister-at-law, and vestry clerk of St. James's, Piccadilly, accomplished the task admirably. We shall shortly publish his lecture in *HYGIENE*.

* *

Adulteration: Egg Powder, Vinegar.—Two commercial substances, largely sold, have lately formed the subject of magisterial inquiries in the provinces.

One of these is egg powder, commonly made with tartaric acid and carbonate of ammonia, useful in the preparation of pastry, cakes, &c., which it renders light and puffy by the agency of the carbonic acid which is formed in the paste during the process of cooking, but having nothing of egg in a ton of it except the name and the coloration. The name is very misleading, as many a frugal housewife fondly imagines that when she is concocting various dainty dishes for her little ones she is giving them something specially strengthening, for has she not put plenty of egg powder in?

The other is vinegar. The oldest known form of vinegar was derived from wine, which, by acetous fermentation, had become sour or sharp (from the French *vin*, wine; *aigre*, sour). This is the definition given in the first French-English dictionary, the Royal Dictionary of Boyer, published, according to a copy in our possession, in 1722. But even at that period sour beer vinegar was also recognised, although regarded as much inferior in quality. It is, however, excellent when made from malt. A third kind of vinegar is obtained from sugar, &c. All of these three varieties of vinegar, or acetic acid, are the result of the oxidation of alcohol. But there is a fourth sort, which is chemically prepared by the destructive distillation of wood, otherwise called "pyroligneous acid." The police magistrates at Birmingham have just recently fined a shopkeeper for selling acetic acid thus made as vinegar. A gallon of this pyroligneous acid costs 3d. to make, and costs to the consumer 14d. a gallon. Here we get probably at the reason why some of the witnesses for the defence spoke in high praise of this vinegar; indeed, more than hinted that they preferred it to any other. As the magistrates gave leave to appeal to Quarter Sessions, we shall be likely to hear more of the matter.

* *

Quackery in the United States is so widespread that it is said that quacks have taken out patents warranted to cure everything, according to the inventors' advertisements, except hams. Perhaps they think that the dangerous parasite known as the *trichina* has put pork on a level sometimes, as regards risk, with patent remedies.

Inquiries into Unhealthy and Dangerous Employments.—It is announced that the Home Secretary has thought it desirable to institute special inquiries into certain occupations and manufactures where there is good reason for thinking that the processes are hazardous to the health of the workpeople. These inquiries will be conducted by committees, consisting of H.M.'s inspectors, with medical men and experts. The committees at present formed are (1) with reference to lead, white lead, &c.; (2) potteries, &c.; (3) chemical compounds; (4) quarries. No. 3 will doubtless include many chemical manufactures, such as alkali works, match-making, and other employments where the workpeople are exposed to more or less risk, according to the precautions taken for their protection. An article on alkali works and match-making, written before the commissions were appointed, will appear in an early number of *HYGIENE*.

* *

Smallpox.—In view of the prevalence of this disease in London and some of our large English towns, foreign governments are issuing notes of alarm and precaution. The Danish Government has decreed that the measures against the importation of epidemic diseases shall be put in force in the case of all ships arriving from London.

* *

London Reform Union.—At a meeting held at the Society's rooms in Arundel-street the following resolution was unanimously passed condemning the action of the House of Lords' Committee in rejecting the Bill for throwing open to the public Lincoln's Inn Fields, formerly devoted to the public use. It was also unanimously resolved:—“(1) That the Local Government Board, in view of the threatening of cholera, be requested to issue regulations for house-to-house visitation in the event of an epidemic occurring, and for cleansing under section 134 of the Public Health Act, 1875, which is by the Public Health (Metropolis) Act made applicable to London.”

* *

Children's Country Holiday Fund.—At the annual meeting of the subscribers at the Hotel Métropole, it was stated by the chairman, the Earl of Denbigh, that the Society sent last year 25,668 London poor children into the country for not less than a fortnight's stay each. As the fund is said to be administered on unsectarian lines, the Society is deserving of full support.

* *

Artesian Well-Boring.—Messrs. Le Grand and Sutcliff, hydraulic engineers and contractors to H.M. War Department, report that, in making an artesian boring at New Lodge, Windsor Forest, they have found the lower green sand at a depth of 1,234 feet, and that, after penetrating it to the extent of 9 feet, a strong spring was tapped, which has risen to 7 feet above surface, although the site is 203 feet above the sea level. The strata passed through in order to reach the spring consisted of 136 feet of London clay, 78 feet of Reading beds, &c., 725 feet of chalk, 31 feet of upper green sand, 264 feet of gault, and 9 feet of lower green sand, making a total of 1,243 feet.

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EDITORIAL AND PUBLISHING NOTICES.

EDITORIAL.—The Editor begs to express his thanks to numerous correspondents, and to state that he will be pleased to receive any articles or correspondence coming within the scope of *HYGIENE*, reports of medical officers of health, items of general or local sanitary interest, newspapers (marked at the part to which it is desired to draw attention), &c.

PUBLISHING.—The terms of subscription not having been raised, although under the new arrangement fifty-two numbers instead of twelve will be sent out annually, all subscriptions now running will continue good for the original period.

SPECIAL.—In consequence of many representations from newsagents and booksellers that Saturday is a most inconvenient day of publication, *HYGIENE* will in future be published every Friday, commencing with Friday, June 9th.

HYGIENE will be forwarded, post free, to all parts of the Kingdom, and to all countries within the Postal Union (including the United States, Canada, France, Germany, Belgium, Italy, Austria, Hungary, Spain, Portugal, Switzerland, the Netherlands, Russia, Denmark, Sweden, and Norway), on the following prepaid terms:—Twelve months, 6s. 6d.; six months, 3s. 6d. Subscription terms for Australia, India, the Cape, and all other parts of the world can be ascertained by inquiry at *HYGIENE* office.

ADVERTISERS are requested to bear in mind the greatly increased circulation of *HYGIENE*, with its weekly issue and reduced price. In addition to the large, regular circulation, many thousands of copies are distributed annually to sanitary officials, medical men, private addresses, public libraries, clubs, hotels, &c.

GARDENS OF REST: THE CEMETERIES OF THE FUTURE.

By the REV. W. ARMSTRONG WILLIS, Rector of Llanrothal, Herefordshire.

It is a commonplace of oratory and literature to point out how the age of great changes in which we live has given fresh features to and even altered the physical aspect of our country. The remote country road with its austere border of telegraph posts, the country itself barred like a gridiron with its lines of rail (fulfilling the prophecy of the old stage-coach driver), the clouds of white steam round our coasts—all are the familiar evidences of the changed conditions of our lives. Could a tithe of these daily miracles have been shown to the acutest minds of the eighteenth century, what unbounded surprise must have been created. Imagine a magic mirror reflecting to Voltaire or Swift a scene such as any railway terminus in London daily offers at the arrival and departure of crowded expresses. Undoubtedly even their imaginations, used to soarings of an eagle's boldness, would have been daunted by a glimpse into such a motley, animated mass. However, instead of working backwards it may not be amiss to cast oneself into futurity and glance at a sight which may be common say at the end of the twentieth century. Imagine in 1950 our ancient practice of burying dead bodies in the earth to be either voluntarily or compulsorily relinquished, and cremation substituted. So much has been written and said in all quarters on the subject of

cremation, that an imaginative mind is now tempted to form for itself some mental image of the many changes which would follow in its train. Coffins would be no more. This short sentence has a kind of pleasing ring to human ears; one sees disappearing into the limbo of "old, unhappy, far-off things" those revolting cases into which our cast-off bodies are packed away before being deposited in the damp earth. Coffins never were and never could be beautiful; brilliant varnishes, choice woods, rich plated metal fittings, all are equally gruesome, and require the kindly shading of heaps of flowers to veil their hideousness. Only the plain elm coffin, simple and unadorned, was bearable, forming as it did the true home of some old, world-worn pauper, who could there rest secure and unmolested, as in his own castle, against "the slings and arrows of outrageous fortune."

Cremation would, with all human certainty, bring us back to the use of urns. There may perhaps be nothing in a name, but the associations of that word are to some of undying satisfaction, for did not the poet, speaking of an urn, give us one of the noblest thoughts in our language: "A thing of beauty is a joy for ever"? Undoubtedly urns are things of beauty, as the merest stroll through any museum will reveal to us. It is needless to fly to the Museo Borbonico, that pride of Naples, or to the chambers of the Vatican, to see how beautiful urns can be, as our own British Museum has a noble collection of them. They vary in material, in form, in decoration; but it can be truly said that in that large assembly of marble, porphyry, and terra-cotta urns there is not one but is worthy of admiration. It is doubtful if any other class of *fictilia* can show such exquisite curves, such elegance of just proportions, and so much suitability of purpose, combined with often lavish ornament, as these cinerary urns of antiquity. There is a marble one in the Woburn collection, with simple carving of the shoots of the common ivy over it, which is more suggestive of the true spirit of beauty than any modern effort of churchyard art which the writer knows. The modern churchyard or cemetery is, alas! a subject sad, not only as pressing home to us a lesson of mortality, but as pointedly showing the degradation of memorial art into which the nineteenth century has fallen. The pious pilgrim of the twenty-first century, on visiting the graves of his ancestors, will shudder when his eye rests upon the specimens of Victorian or Georgian art which they will offer to his cultured gaze. It is unnecessary to dwell on the broken columns, the ill-proportioned crosses of bastard Runic and Gothic

styles, the broken lily for ever fixed in its momentary fall of blossom, the patches of ground heavily railed in and covered with cubes of white marble, simulating lumps of loaf sugar; all these, and the kindred abominations of tin flower wreaths, are too miserably depressing. We cannot all lie in some quiet spot (so retired as even to have escaped the prevalent vulgarisation), such as Gray's *Elegy* calls up to our mind; but who does not turn away unnecessarily saddened from those great stonemasons' yards which are called in the nineteenth century cemeteries?

The cemetery of the next generation must be a place of truer repose; its name will be Rest-Garden. A site having been chosen by common consent, it will be walled in. Within this walling, and masking it, trees in abundance will be planted in a dense belt; but not so dense as to prevent each individual tree from realising its own full fair promise of maturity, and this outer wall will be clothed with glorious creepers. The half-mourning tints of the wisteria, the pure clusters of the old white rose, the scarlet tapestry of the Virginia creeper, will all be there; where the sun shines less abundantly there will climb the great family of various ivies. Within this wall, separated from it by the trees, but following its curves, will be built a great cloistered, covered way, strong as rock and of great architectural simplicity, containing on its inner side receptacles for urns. This covered way would not all be at built one period, nor of necessity would it be continuous; where it was interrupted either by accident of ground or for any other reason, carefully selected trees would be planted. The space not covered as before described would be devoted to lawns and groves, and glades of trees planted to suggest as great space and distance as possible. The most illustrious and best loved of the community should, by special grace, be commemorated by some rare and beautiful tree or shrub planted by grieving friends. The hero would live again in his memorial oak, the good divine have a dedicatory Lebanon cedar, the poet a sky-pointing poplar to make bars against the sunset sky; a grave matron would have a noble dark-coloured beech; while the maiden, cut off in her young beauty, might shine out of the dark, glossy leaves which shade the white chalices of a magnolia. The young children and babes would be remembered in spring by sheets of shimmering snowdrops, shaking daffodils, and buds of crocus peering out of the growing grass. The set and studied floral arrangements of the parterre and terrace-garden would be absent. Two things would be a never-failing feature of these Rest-Gardens. Sur-

rounded by exquisite glades of choicest trees, somewhat retired from immediate view, will be placed an ever-flowing fountain of pure water; this will have a double symbolism, that of the rivers which watered the first and true Rest-Garden of Paradise, and also reminiscent of that vital water which is to quench all thirst. The other feature incidental to these places will be a well-placed mound clothed with grass. If there is a landscape of fields and trees outside the surrounding wall, it will be high enough to command a view of it; if not, it will be situated to give from its summit the choicest view of the garden itself. This mound will be crowned with a noble cross, the symbol of human redemption, in marble, stone, or granite; very simple, very large, and of perfect proportion, but all-pervading. To these spots the mourners will come, and perchance in such surroundings of perfect peace and pure loveliness will find a balm for sorrow and a clue to the peace incomprehensible.

In great towns such a garden will be impossible; yet, with a natural tenacity of affection, men may well wish their ashes to rest inurned close to the busy streets, lanes, and courts, where they have lived and worked. For these another plan will be adopted. There will be the same cloistered covered-way, but arranged so as to form quadrangles, which in some cases will be glazed and covered in, to prevent the intrusion of the dust and noises from the world without. As will befit a resting-place for the dead in a city, the adornment will be more by the immediate products of man's own artistic skill. Gates of choice metalwork, walls wakened into splendour by great mosaics, and, in moderation, some choice memorial statuary, will be the mainstay of the decoration, and all will be contributed by mourners. Artists will vie with one another to produce the finest work, knowing that the dead will guard the treasures well, and preserve the evidences of their skill for a remote posterity. In the centre of the courts will stand a majestic cross, and, where the architecture allows, coloured windows; these will let in their mellow, soft-tinted rays, and show lovely hues in that sunlight which is never more beautiful than of an early morn in the city. Marble benches around the cloisters and in the quadrangles will find many a stray occupant in the course of the day, and the busiest will be tempted to turn aside into this haven of quiet rest and beauty to inhale its peaceful air for a few snatched moments.

These Rest-Courts and Rest-Gardens will exercise an important influence on the coming generations, who will form habits of thought, self-examination, and

serious reflection in the moments they will pass there, the ashes of their fathers around them, trophies of human skill guided by divine intelligence on every side, and brooding over all the Shadow of the Cross.

In the quaint words of old Sir Thomas Browne, M.D., in his treatise on "Urn-Burial," this desultory article must find its conclusion; in their strange way they offer due apology for humanity's fond care of its dead: "Christians have handsomely glossed the deformity of Death, by careful consideration of the body and civil rites, which take off brutal terminations; and though they conceived all repairable by a Resurrection, cast not off all care of interment. And since the Ashes of the Sacrifices burnt upon the Altar of God were carefully carried out by the Priest, and deposited in a clean field; since they acknowledged their bodies to be the Lodging of Christ and Temples of the Holy Ghost; they devolved not all upon the sufficiency of Soul-existence, and therefore with long services and full solemnities concluded their last Exequies."

*HYGIENE IN ITS APPLICATION TO THE ARRANGEMENT OF BUILDINGS.**

By P. GORDON SMITH, F.R.I.B.A., Architect to the
Local Government Board.

(Concluded from page 40, May 27th).

I REFERRED at the commencement of this paper to the way in which the pavilion system of hospital construction is occasionally abused. That system was introduced mainly no doubt to secure improved ventilation in the wards, but it also possessed the advantage of allowing the sub-division of the patients, and of the more effectual classification of them, the surgical from the medical, and of grouping them with greater comfort to themselves and with greater efficiency, convenience, and economy of administration. That the sub-division of the patients in a large hospital is of value as an important factor in the health conditions of the institution will be admitted by everyone who carefully studies the statistics and mortality rates of hospitals. The late Dr. William Farr, of the Statistical Bench of the Registrar-General's Department, says:—"The collection of a number of persons exceeding those of an ordinary family, under one roof, has hitherto had a tendency to increase the dangers of disease; for several diseases are, like fire and ferments, diffusible. The danger is increased when all the patients are sick, for their breath and excretions spread through the wards. The dangers, too, are likely to increase in a faster ratio

* A paper read at a meeting of the Architectural Association.

than the numbers."† I wish to lay special stress upon this assertion of Dr. Farr's, that the dangers of aggregation *are likely to increase in a faster ratio than the numbers of patients*. As bearing on the same feature, I may remind you of what is said by Mr. Lawson Tait, the eminent surgeon, where, in his work on "Hospital Mortality," he contends that his statistics prove "that after the number of beds in a hospital exceed 100 the risk to life becomes so much increased that it is questionable whether any hospital should be larger than this. If circumstances make it necessary that the hospital should be larger, most undoubtedly special arrangements and precautions should be taken to obviate the extra risk which is involved."

In view of these grave assertions of men whose experience and position entitle their opinions to much weight, it is indispensable to arrange a pavilion hospital in such a manner that the several pavilions shall be absolutely detached one from another, and so that the wards in every block should not intercommunicate with each other so as practically to have one atmosphere common to all of them—a point of importance, be it remembered, in a cottage hospital (where surgical and medical cases are received for treatment) as well as in other hospitals. This arrangement of complete separation of the several blocks or pavilions of a hospital is well understood by our friends in France, Germany, and some other countries, where the pavilions in certain modern hospitals are placed at a distance apart without any other means of communication with each other and with the administrative offices than an open path or roadway; and, moreover, the blocks are often only one storey high, and consequently contain only a very restricted number of patients. Now, if we look at the arrangement of our hospitals at home, we find a condition very different from what our foreign friends consider desirable. Which hospital shall we choose for examination? St. Thomas's Hospital is one of our most modern, erected at great cost, in a position where it claims the attention of foreigners, and competes in magnificence with the Palace of Legislature opposite to it. At this hospital we find huge wards piled up one upon another in four storeys, with a basement for stores, &c., beneath them, and dormitories for nurses and servants in an attic above them. Not only are these wards intimately connected with each other by spacious staircases from basement to attic, lifts for patients, lifts for coals, food, &c., and shoots for ashes and soiled linen, but, as if there had been a distinct intention to assimilate the air

throughout the interior of the whole institution as much as possible, and to counteract the effect of the "pavilion" system, the several pavilions, each holding some 112 patients, are connected together by enclosed corridors in the basement storey, in the ground storey, and in the one pair storey. So, too, are some of our best poor law infirmaries. The pavilions are joined together end to end, instead of being kept separate, and merely connected with the staircase by means of a short corridor. These arrangements are directly the reverse of what is aimed at in the best examples of modern hospital construction in France and Germany. At the great Friederichshain Hospital at Berlin, and at the Moabit Hospital also at Berlin, at the Eppendorf Hospital at Hamburg, at the St. Denis Hospital near Paris, and others, the ward blocks are absolutely detached, and at some, as the University Hospital at Heidelberg, the ward blocks are connected by a mere covered way open at the sides. No difficulty whatever is experienced in the administration of these hospitals, consequent upon the distance to be travelled in the open air from the nurses' quarters and kitchen offices to the several ward blocks, and the hygienic advantage of complete separation of the patients into small groups is appreciated by the medical staff of those hospitals. This segregation of patients is carried to much greater length in the best modern foreign hospitals than in England, for, as a general rule, the ward blocks rarely exceed one storey in height, and practically are never more than two storeys high, while the number of patients under one roof or in one ward is much less than is the case in our English and Scotch hospitals. So, too, the buildings are spread over the site so as to give a far larger area of site per bed than is customary in our own modern hospitals. At the great University Hospital at Halle, in Germany, the arrangement resembles a collection of small hospitals rather than one huge hospital like our own St. Thomas's Hospital.

Another hygienic arrangement common in Continental hospitals is the plan of forming verandahs, balconies, and even detached out-buildings or summer-houses, in which a large proportion of the patients are placed, while still in bed practically, in the open air by night as well as by day during some four or five summer months in the year, and I am assured by eminent surgeons and medical men that this arrangement is attended with great benefit to the patients. At the Civil Hospital at Dresden two such summer-houses are in the gardens. The plan is growing in England, and has been found in several instances in my own knowledge to be most beneficial. This plan of moving the patients out of the general wards during the summer affords the opportunity for allowing those wards

† "Vital Statistics," page 423.

of the hospital to be emptied for purposes of cleansing and sweetening. Indeed, an eminent German physician once told me in Berlin of the hygienic value attaching to the arrangements of a hospital admitting of every ward being allowed to "lie fallow" for a period every year, during which the window sashes are removed and the interior exposed to wind and weather. This is in accordance with the experience of a fever hospital with which I am associated, where it has been found and recorded that after every time of purifying, whitening, and painting the wards the patients with scarlatina first received into them do better than those received into wards which have not been recently purified.

It is unnecessary for me to deal generally with the question of arrangement of domestic buildings in their hygienic aspect, since the need for ample means of light, access of sunshine, and circulation of air about them must be well known to all. But there are one or two points about this class of building to which I must briefly refer. There are plenty of examples of blocks of so-called "model" dwellings in all our large towns, which may be pointed to as "models" of what to avoid. In London we may easily find instances of blocks six and seven storeys high directly connected at right angles, and even at acute angles, so that the sun (even when it does shine) can never reach many of the windows, and so that there is inevitable stagnation of air; or again they are arranged in the formation of streets—culs-de-sac—only 24 feet wide. These errors are common enough, owing to the absence of any sufficient controlling power, and, though they are fully recognised by the architect, and by the County Council too, they are nevertheless often committed under professional superintendence in order to comply with the client's demands for adequate, if not excessive, return for outlay.

In many of the earlier built blocks of artisans' dwellings it was common enough to arrange them in such a manner that many families were aggregated together in the one enclosed atmosphere of a building many storeys high. These buildings were very disappointing in their wholesomeness, and the evidence given before the Royal Commission on the Housing of the Working Classes, 1884, affords some suggestive information bearing upon this important question of hygiene in its application to the arrangement of buildings, while the density of population, in some instances reaching a rate of about 1,000 to the acre, was shown to be very high. The mortality rate in these huge blocks of artisans' dwellings is commonly higher than it ought to be, when it is borne in mind that the tenants are to a large extent specially selected for their respectability and other good qualities.

I do not imply that any system of selection is intentionally adopted by the landlord, but that, in effect, the tenants come to be sifted down, so to speak, to a picked set of respectable families, the average being more steady, sober, and reputable than the average of the same class living elsewhere. Notwithstanding this advantage, the difference between the mortality rate in these block dwellings and in the whole metropolis is often very small, and this too even in the rate of infant mortality. Thus, it has been stated that in a population of between 6,000 and 7,000, occupying upwards of a dozen different estates of block buildings, the general death rate was 15·6 per 1,000, while in the whole metropolis it was 18·5 per 1,000; but in those same dwellings the rate of infant mortality was 140 per 1,000 births, or only six less than in the whole metropolis, where the rate during the same period was 146 per 1,000 births, a difference in that most important matter which is so small as to leave much material for reflection and inquiry.

Closely akin to the subject of block-dwellings is that of common lodging-houses and so-called "refuges" for homeless persons. When it is borne in mind how the persons resorting nightly to these dwellings carry disease about and spread it all over the country, it will be admitted that improvement is desirable in the arrangement and other conditions of the buildings they inhabit. It has been noticed over and over again that where extensive works, such as railway construction, water conduit works, canal works, and the like, are in progress and a large number of navvies have to be temporarily housed, various kinds of disease commonly break out among them, and are often spread from them over very wide areas. Now if we look at the conditions under which these people are usually housed, we shall find them crowded together night after night in large numbers with the scantiest amount possible of space—cubic and superficial. The contractor's navvy is housed in a wooden hut, the lodger in the common lodging-house is crowded into an indifferently ventilated dwelling, and the homeless poor seek the shelter afforded either by the charitable or the parochial authorities in such refuges as are available, and there are many, but the hygienic arrangements of them generally leave much to be desired. They often hold some hundreds of lodgers, the dormitories having as many as fifty to seventy or more beds in them, and this in two or more storeys. These conditions are obviously not calculated to promote the health of the lodgers, but rather to foster and encourage any latent disease that may exist among them.

In my opinion it is most desirable that the building

should be so arranged as to allow the large numbers received into such lodging-houses and refuges to be subdivided into small groups, the dormitories being severed as much as possible, aërially, one from another, and the number of lodgers in each reduced to a maximum of some twenty, unless the customary amount of superficial and cubic space to each lodger be largely increased.

It will be gathered from what I have said that great hygienic importance attaches, in my humble opinion, to such arrangement of building as will ensure the segregation of human beings as far as practicable where they have to be collected together for special purposes, and it is because I have been led to this opinion by many years of observation that I venture to urge it as strongly as I do. I have noticed that, even quite recently, competitive plans have been or are to be invited for large schools—in one case a day school for some 1,200 children, and in another a residential school for some 700 boys, with an intimation that accommodation will be needed later on for about 500 girls—and, so far as I have been able to gather, the really important questions of the hygienic arrangement of buildings and of the disposition or grouping of the children for purposes of health, are practically ignored, or are left to be determined on the lines that it has been the custom to follow for very many years, and which I venture to think ought to be regarded as obsolete.

I do not doubt that much may be said in favour of the present system of arrangement—the aggregation system I will call it—on the score of economy, but I am inclined to demur to a good deal that has been urged on this head. Time, however, does not allow of my going into the question of relative cost of the two systems on the present occasion. But I will conclude with the hope that the points I have urged may be helpful to the architect in the advice he may be called upon to give his client as to the best way, from a health point of view, of arranging the building he is commissioned to design.



Poisoning from Eating Unsound Meat.—In Oxfordshire several persons were rendered seriously ill—one dying—through eating meat which had been disposed of to them, though in an unfit condition for use as human food. A farmer sold two diseased cows for £1 to a dealer named Kempson, who, it is alleged, afterwards sold various parts of the flesh. The symptoms from which those who ate the meat suffered were violent abdominal pains, sickness, and diarrhœa. At the inquest held on the woman who died a verdict of manslaughter was returned against Kempson.

NOXIOUS EMPLOYMENTS.

DISEASES INCIDENTAL TO WORKPEOPLE IN CHEMICAL AND OTHER INDUSTRIES.

THIS was the subject chosen by Mr. Watson Smith, Lecturer on Chemical Technology in University College, London, for his address delivered at the annual meeting of the Chemical and Physical Society of that institution. The address has since been published in a pamphlet form. (H. K. Lewis, Gower-street.)

Mr. Watson Smith has brought a large amount of practical knowledge, acquired by him during many years' active engagement in their management, to bear on his description of various chemical industries. While allowing that certain manufacturing processes must, of necessity, involve risk to the health of the workpeople, he points out that the masters have at heart the interests of the employed, and are ready to adopt any measures which would tend to render the operatives less likely to suffer from the noxious effects of their employment. He pays a high meed of praise to the value of Dr. J. T. Arlidge's recent book—"that most useful work of philanthropy and hygienic science combined"—but he strongly deprecates the sensational articles which have appeared in the general press based upon it. There is certainly a wide difference between Dr. Arlidge's title, "The Hygiene, Diseases, and Mortality of Occupations," and that of "Death in the Workshop," substituted by some of the reviewers of the book. At the same time, Mr. Watson Smith sometimes permits his zeal to put matters in a favourable light, to assume rather the semblance of holding a brief for the masters. He makes a direct onslaught upon factory doctors, viz., medical practitioners engaged and paid by industrial manufacturing firms to look after the health of the workpeople. Mr. Watson Smith argues that the responsibility paid for by the firm of employers, and affecting the lives and welfare of, in some cases, hundreds of persons, is too great for one individual alone to undertake, unseen, unchecked, and perhaps with a considerable private practice besides; and then he observes in solemn, mysterious language, the effect of which is heightened by the use of italics, "He ought to be relieved; he ought to be checked; he ought to furnish precise and definite data and statistics, and he ought to be thankful to have to do so." Unless the salaries paid to factory doctors are much higher than we have generally understood to be

the case, we doubt if any medical practitioners of good standing would be found willing to accept the position if they were debarred from private practice, so that instead of Mr. Watson Smith writing that they ought to be relieved, he might have said that, with such a condition attaching to the appointment, they would promptly relieve themselves of such high responsibilities, with comparatively low remuneration; and then they would escape the other conditions, including thankfulness for small mercies and large responsibilities. But, supposing the entire machinery of factory doctors—we presume that Mr. Watson Smith refers only to medical men engaged in connection with manufactures admittedly noxious in their character—were swept away, what would Mr. Smith set up in its place? He would substitute a Consultative Medical-Technical Staff acting under the directions of the Home Secretary; the sort of body, possibly, to conduct an inquiry, or to exercise supervision, though absolutely unable, for obvious reasons, to give attention to the continuous health-requirements of the workpeople. Mr. Watson Smith is editor of the *Journal of the Society of Chemical Industry*, which society is composed mainly of manufacturers. We hope that these gentlemen do not share in the low estimate expressed by Mr. Smith of the intelligence and utility of the doctors attached to their works.

Amongst the manufactures to which most public attention has of late been directed is that of bleaching-powder, in the production of which chlorine plays an important part. It occasionally happens that the labourers employed in the bleaching-powder chambers get an overdose of the chlorine, when they become what is termed "gassed;" a most undesirable result, as it not uncommonly ends fatally. Another class of men working at bleaching-powder manufactories are those who prepare, sieve, wheel, and tip the lime-dust in the chambers. Mr. Smith describes their duties as especially trying, particularly in hot weather, for the lime-dust makes the skin very sore, and if inhaled quickly affects the throat and lungs. Hence it is incumbent on these men to wear close mouth-wraps while engaged in their work. It has been suggested that it would be desirable to endeavour to discover some means whereby such labour should be rendered less harmful; a question upon which a Medical-Technical staff might with advantage bring their expert knowledge to bear. The effect of previous inquiries and observations has been the introduction of regulations for promoting the safety and comfort of the operatives. Further consideration might have a

salutary influence in the same direction, and would be more reassuring to the public mind than the optimist assertion, "There is nothing deadly about alkali works except the dirt and the drink." If by "dirt" Mr. Smith means the lime-dust, the chlorine vapour, and other concomitants of the manufacture, there is enough to be dangerous, if not deadly; possibly, however, he refers to the habits of the workpeople, as in the same sentence he pointedly mentions also "drink." Of course, uncleanness and intemperance are important factors in the production of illness and in the shortening of life, whatever the occupation of the individual may be; and Mr. Smith's railing at the factory doctors (from whom Dr. Arlidge derived much of his information) and wholesale denunciation of the habits of the operatives looks unpleasantly like an attempt to put the employers' case right at any cost to the reputation of everyone else concerned. By his own showing Mr. Smith proves that all of the men are not drunkards, for in the evidence of several bleach packers employed by the Alkali Union, obtained with a view to demonstrating the comparative healthiness of the work, we find one man, who has been employed in chemical work twenty years (sixteen out of these as a bleach packer) stating that he "does not consider men employed in chemical works exceptionally intemperate." Then, what becomes of Mr. Smith's insinuation about "deadly drink"?

With respect to the alleged terribly unhealthy condition of Widnes, the great Lancashire alkali centre, Mr. Watson Smith gives a diagram of the mortality of that town as contrasted with that of some of the large towns in the north of England. In the ten years, 1881-90 the average death-rate of Widnes was 20·01 per annum, while that of Warrington was 21·9, of Blackburn, 24·8, of Liverpool 26·3, of Preston 20·5, and of Manchester 26·6. It is too well-known a fact that several of these towns are unhealthy, although they have improved of late years; moreover, they have populations far exceeding that of Widnes. Widnes has some 30,000 inhabitants, Warrington (the nearest approaching this figure) 52,000, while in round numbers the populations of Preston and Blackburn at the last census were respectively 107,000 and 120,000, and Liverpool and Manchester have each more than half-a-million inhabitants. The Prescot Union, in which district Widnes is situated, had during the ten years referred to by Mr. Smith an average annual death-rate of only 15·8 per 1,000. Finally the number of men employed in the alkali works of Widnes does not constitute a very large proportion of

the population of that town; it was not the health of the place generally, but of a special class of workmen, with which Dr. Arlidge concerned himself in his book.

(To be continued in our next number, including match-making, india-rubber works, &c.)

ON HAY-FEVER, HAY-ASTHMA, OR SUMMER-CATARRH.

BY THE EDITOR.

(Continued from page 41, May 20th.)

THE premonitory symptoms are not of long duration and they consist chiefly of a general feeling of ill-health and malaise, and of various uncomfortable sensations in the different organs where the affection subsequently becomes localised. The permanent symptoms usually make their appearance suddenly, and remain for some weeks, or even, in severe cases, months. The parts which are first affected are the eyes and the nose; next the soreness of the throat comes on; and, as a general rule, the bronchial symptoms occur still later in the course of the disorder. The severity of the different symptoms bears some relation to the state of the temperature; when the temperature is lowered the bronchial symptoms are more marked, while an increase of temperature causes their disappearance, simultaneously with which the irritation and inflammation of the mucous membrane of the eyes and nose are intensified. The symptoms connected with the nose and eyes are generally most severe in the morning, commencing as soon as the patient rises from bed; the difficulty of breathing and the fever are, on the contrary, more marked towards evening. As the disorder wears off, the local symptoms are diminished, and gradually disappear, and there remains only general debility and a feeling of ill-health, with heightened sensitiveness of both mind and body. The patient is for some time liable to a relapse, if he should happen to be again exposed to the exciting causes of the malady. Many patients suffer from a second attack, usually not so severe as the first, in the months of August and September.

In some instances this second attack is undoubtedly due to the flowering of the grass in fields where a late crop of hay is grown; in others it appears to be connected with emanations given off by decomposing leaves and other vegetable matter, common at this season of the year. This latter cause is

especially in operation in low-lying localities, near stagnant water.

The duration of the attack varies in different persons. The average length of the prominent symptoms is from six to eight weeks; but in some individuals it lasts for as long a period as three or four months. It seldom continues for a less period than five or six weeks, unless cut short by treatment. The duration of the affection is, in itself, a sufficient answer to those who look upon Hay-Fever as a trifling ailment. Unless the length of time of the attack is abridged by medical treatment, the patient often remains for many weeks, at least, in a deplorable condition, and is incapacitated from following his ordinary occupation. Dr. Bostock, whose case has already been quoted, was compelled to retire to the seaside in order to obtain some alleviation of his sufferings; and very many instances have come to my knowledge in which the patients, including persons in all classes of society, had been prevented, annually, for many years, during more or less of the summer months, from attending to their usual avocations.

During the earlier years in which a patient is subject to the attacks of Hay-Fever the length of the illness increases every year; but at a later period of life it may gradually diminish, and in some instances recurs for only a limited period annually as old age advances. Dr. Bostock says that the disorder is more apt to increase than to decrease with the advance of life; this rule holds true, perhaps, until a certain period, but after this the affection not unfrequently declines gradually as regards its severity. This may be the consequence either of the patient being less likely, through inability to go much into the open air, to be exposed to the exciting causes of Hay-Fever, or of his becoming subject, as old age approaches, to chronic affections of the chest, such as bronchitis and asthma, which take the place of, or mask, the original and special disorder. The tendency to suffer from the affection is never completely lost.

I once had under my care a gentleman, eighty-three years of age, who had suffered from Hay-Fever for more than fifty years. The predominant symptoms were those of asthma, from which the patient suffered throughout the whole year; in the months of June, July, and August the asthma was more troublesome than at other seasons, while evidence was given of its original nature by the sneezing, running at the nose, and feverishness during those months.

Hay-Fever is most commonly a disease of adult life;

but it may occur at all ages. I have seen young children suffering from it, and an author whom I have already quoted says that it commenced in him at the age of eight years.

Several years ago I saw an instance of summer-catarrh in a child only nine months old, the son of a gentleman living in Portland Place. This is the youngest person I have ever known suffering from this affection; but it should be mentioned that the father was himself a martyr to Hay-Fever, and that two of his sisters, an uncle, and other near relatives were affected by it, showing the existence in the family of a strong predisposition to the disorder.

The age at which it makes its first appearance varies considerably — generally between the tenth and thirtieth year of life—although it may occur at a still earlier period, as in Dr. Bostock's case, and the other instances to which I have referred as having come under my own observation. No case has been put on record by any writer but myself in which the first attack occurred after the patient had attained the fortieth year of his age.

In this instance, illustrative of the proverb, "there is no rule without an exception," a gentleman who came under my care during the summer of 1867 stated that he never experienced an attack of Hay-Fever until he was forty-three years of age. It should be added, however, that from the age of twelve until that of forty he had resided in South America. He informed me that when he was a boy he suffered occasionally from bleeding at the nose, which I have frequently found to be the case with young persons predisposed to summer-catarrh. His removal from England at an early age, and his subsequent long residence abroad in a part where he was not exposed to the chief exciting causes in his case, probably prevented the manifestation of the disorder until after the ordinary period for its appearance.

Many individuals suffer from this affection for years, and, in fact, many continue to do so during their whole lifetime without being aware of the nature of the ailment from which they suffer. Persons find that after going into the fields where the grass is ripening, or where hay is being made, they suffer from severe attacks of sneezing, watery discharges from the eyes, and other annoying symptoms; but they do not, in any direct manner, connect these symptoms with the actual cause.

Cases have come within my knowledge in which persons have suffered from Hay-Fever for ten or more

years without suspecting the real nature of their affection.

A patient of mine, having taken a house at a distance from London, was in the habit of making a near cut through some meadows on his way to and from the railway station every morning and evening. This he continued to do with impunity during the earlier months of the year; but, as the summer came on, he found himself often troubled with sneezing fits, occasional headache, and lassitude, which he attributed to the heat and to the weariness produced by close application to business. He consulted me about the middle of June, on account of the debility from which he supposed that he was merely suffering. Noticing the running at the eyes and frequent sneezing, I inquired about the hay crops in the neighbourhood of his country house, and in the course of conversation I soon ascertained what his ailment was attributable to. He was rather sceptical when I told him that his "weakness" would disappear speedily if he would adopt a different and more circuitous route to the railway station, going along the turnpike road instead of through the meadows, and if he would follow a course of alterative and cooling medicine which I prescribed for him. He adopted my advice, however, with the regimen and treatment which I prescribed, and in about a fortnight had completely recovered his accustomed good state of health. A relapse happened later in the year, but yielded in a few days to the same treatment as that previously successful.

Another instance of similar kind occurs to my recollection. Some years since, in the month of June, I visited a patient at a school in Surrey. After I had prescribed for the case, my opinion was asked as to the probability of measles occurring in one of the other pupils, who had been suffering for two days from running at the eyes and nose and other symptoms analogous to those observable before the eruption of measles presents itself. The weather was hot and close, and through the open window of the parlour, where the lad was lying on the couch, came an unmistakable aroma of newly-made hay. Struck by the coincidence of the boy's illness and of the hay-making in the immediate vicinity, I made enquiry and learned that the grass in the field next the play-ground had been cut three days previously, and that the boys had been allowed to assist in the hay-making. This lad became so ill after a few hours that he was taken into the house, and the head master of the school, judging by the premonitory symptoms, feared an outbreak of measles among the boys. I was able to assure him

that he need be under no apprehension of an epidemic. The lad was, according to my directions, removed into a room on the other side of the house, as far as possible from the exciting cause of the affection. I treated the case afterwards by correspondence, and the patient recovered in ten days.

This and the preceding case furnish good examples of the advantages derivable from the employment of prompt measures at the commencement of an attack of Hay-Fever. When the affection has lasted for a considerable number of years it is by so much the more difficult of cure.

One peculiar characteristic of Hay-Fever is its periodical return, which happens almost invariably towards the end of May, or the beginning of June, in every succeeding year after it has made its first appearance—the period of recurrence bearing a direct relation to the first hot days in summer.

The first heats of summer are always a powerful exciting cause of summer-catarrh. In years when the hot weather sets in suddenly, Hay-Fever simultaneously makes its first appearance in various localities. I have amongst my notes of cases an observation that in 1867, when the hot summer weather came in abruptly, several of my patients, living in different parts of England, experienced the commencement of their annual attack on a particular Friday and Saturday early in June; one gentleman, residing in the Midland Counties, informed me that the affection began on the same day in himself as in his brother, then staying at Southampton.

Cases have come under my notice in which the symptoms have broken out with sudden violence during the sultry, close weather which sometimes occurs early in May. In the south of England, Hay-Fever most generally begins to manifest itself at the end of May or beginning of June; in the northern counties it is some weeks later; and in Scotland it is even later still.

When the patient is affected for a second time in the same year, the months of August and September are the most common periods of the attack.

Among the causes of Hay-Fever, a peculiar tendency to suffer from it may be noted as one of the principal. Although a very great number of persons are exposed to the various predisposing and exciting causes which give rise to this disorder, only a limited proportion of the population suffers from it; and in those who are attacked by it, the affection is so severe and, if allowed to progress unchecked for too long, so difficult to treat successfully, that this singularity can only be accounted

for by the assumption that it is often dependent on a specially marked predisposition, which is inherent in the individual, and is connected with the nervous and mucous systems.

In considering this point it must be borne in mind that many persons are probably victims to Hay-Fever, without knowing the real nature of their disorder. One person imagines that he is suffering from an attack of common influenza; another thinks that he is merely "out of sorts;" and a third fancies that his ailment is ordinary asthma or bronchitis; so that they may go on suffering for many years without knowing the cause, or deriving relief from treatment.

(To be continued.)

PUBLIC HEALTH REPORTS.

Ripley Urban Sanitary District.—Medical Officer of Health, Dr. Edward Gaylor. The mean annual death rate of this Derbyshire town for 19 years, during which period Dr. Gaylor has held office, having, in point of fact, held the post from its commencement, was 13·31 per 1,000. Last year, owing to a serious epidemic of measles, the mortality rate rose to 23·48 per 1,000. Unfortunately, there is a common tendency to underrate the importance of this affection, a circumstance upon which Dr. Gaylor makes the following comments:—"Measles, as is known, is not notifiable. I am one of those who think that erysipelas should be left out and measles put in its place. Of course, it is very difficult to isolate measles, and yet it is of a terribly fatal character. People quietly say, 'It's only measles; don't make such a fuss about it;' yet it destroyed in the year 1892, in England and Wales, about 13,000 lives. In the December quarter of 1892 it was the cause of death in 3,650 cases. Twice as fatal as diphtheria and scarlet fever put together, and more than double all the other fevers put together. So we see what a formidable disease we have to deal with." As we have previously stated, an epidemic of measles, which caused 30 deaths in this town of between 7,000 and 8,000 inhabitants, was so severe in its results as to send up the annual rate of mortality from the low urban rate of 13·31, on an average of nearly twenty years, to the high one of 23·48 per 1,000. Of the deaths registered as due to measles, 28 were those of children under five years of age, only two of the victims being older.

Although smallpox has been very prevalent in some of the large towns in adjacent counties, there

was but one case at Ripley during the past twelve months, and that not fatal. In this instance the disease was brought into the district by the patient himself, a working man who had come from Batley, Yorkshire, where smallpox was epidemic, to Ripley in search of employment. Two or three days after reaching Ripley he fell ill, and Dr. Allen, who was called in to see him, promptly telegraphed notification to the medical officer of health. Dr. Gaylor, having no district isolation hospital to which the patient could be removed, sent to Derby to ask the authority there to allow the sick man to be admitted to their hospital for infectious diseases, but permission was refused. The house at which the smallpox patient was lodging had four other occupants, a man, his wife, and two children. The measures adopted by Dr. Gaylor were prompt and decisive, and doubtless averted the spread of the disease. The two children were sent away to a relative living a mile off, and under Dr. Gaylor's advice the Ripley sanitary authority availed themselves of the power conferred by Section 131 of the Public Health Act, and made the house in which the patient was lying a hospital for the time being, by becoming themselves the tenants. The wife of the occupier and her mother were engaged to nurse the patient, and revaccination, disinfection, and other steps were taken. Speaking of vaccination, it may be mentioned that the vaccination officer informed Dr. Gaylor that there were no unvaccinated children in the district; another circumstance which, no doubt, helped to prevent the affection from attacking other persons than the man under treatment.

Only two cases of scarlet fever were notified; of typhoid, only one. This occurred at a group of four houses situated outside of the town. Their water supply was derived from a well sunk in an adjacent field, and polluted by organic matter washed from the surrounding manured land. The drainage was also very faulty, consisting of a small open hole at each end of the row of houses.

The want of an infectious diseases hospital has already been referred to, and Dr. Gaylor makes mention of it in one part of his report, to emphasise his recommendation that the sanitary authority should lose no time before making such a desirable provision. Another matter to which Dr. Gaylor properly adverts is the fact that, though the sanitary authority printed his annual report during the first few years in which he held the post of medical officer of health, they have since then ceased to do so. Seeing that the Local

Government Board require a copy, as well as the County Council, the District Authority, and the medical officer himself, it is a mistaken economy on the part of any authority not to provide the moderate funds for the printing and publication of so important a document. Moreover, every member of the Local Board should have a copy, and good hygienic results would come from the distribution of copies amongst other local officials and influential persons. Judging from the circumstance that we not unfrequently hear of other authorities falling into a similar error of omission, we think that this is a subject upon which the Local Government Board would do well to issue a general memorandum. Dr. Gaylor speaks in high terms of the assistance and co-operation rendered by the sanitary inspector, Mr. Shelton, in all matters appertaining to the public health.

*PATENT MEDICINES.**

By the EDITOR.

NO. IV.—REVALENTA ARABICA.

WE saw some time since a monster advertisement, which took up the greater part of a page in a London daily paper, setting forth the marvellous curative virtues of Revalenta Arabica. From asthma right away through the alphabet down to vertigo, no disease has ever been known to resist this wonderful remedial agent, according to the published specimens of the 100,000 (we hope our compositors will be careful with the noughts, there are plenty of them) testimonials of cures which the proprietors profess to have in their possession. Besides, these testimonials are many of them quite respectable by reason of their age, bearing such dates, for instance, as 1850, 1852, and the like, while some may be even older, for they have no date at all. And such people of rank, too!—for example, a Marchioness de Bréhan, of Versailles, whose cure is numbered 58,614, felt so “dreadfully low-spirited” that even the voice of her maid annoyed her. There is no novelty in ladies being annoyed at the voices of

* Some of the articles constituting this series have already appeared in *HYGIENE* when published as a monthly magazine, and were reprinted in two volumes. But as one of these—Vol. I.—is out of print, we propose, at the request of many readers, to commence a new series, as much of the matter will doubtless be fresh to the great majority of the readers of *HYGIENE* in its altered form. New reports and analyses will appear from time to time. No. I. (May 13th) included:—Patent Medicines; Patent Medicine Law; Mattei's Electro-Homœopathic Remedies. No. III. (May 27th), Clarke's Blood Mixture. No. III. (May 27th), Clarke's Blood Mixture, Chlorodyne and other Opiums.

their maids, particularly if the latter, irritated by their mistresses' scolding, should "give it them back again," as they would say, when subsequently describing the incident in the servants' hall. However, the poor marchioness must have been in a very bad way, for she asserts that "many medical men, English as well as French, had prescribed in vain." The last three words remind us of the doggerel epitaph, "Affliction sore long time I bore, physicians were in vain," &c. It rather puzzles us, as the marchioness has not thrown any light upon the matter, to make out how she contrived to consult so many English physicians at Versailles, but that is a mere detail, which one loses sight of in rejoicing that she not only recovered her health, but was able to resume her social position. How nice and how thoughtful of Du Barry and Co. to give us the cases of such interesting people, instead of vulgar, common paupers like the one who is said to have cured a hole in his leg by taking Clarke's Blood Mixture. Looking at the matter from a business point of view, too, it costs no more to advertise a marchioness's testimonial than a pauper's. So our advice to quacks is: Stick to the people of title and let the paupers go to the—workhouse.

"A fool and his money are soon parted," as our readers will presently see—not that we consider ourselves the fool, having a special reason for the purchase. We invested two shillings in a half-pound packet of Du Barry's Revalenta Arabica at a chemist's shop in the Strand, being particular about its being Du Barry's, as the manufacturers of this article have issued a caution against *cheap* foods. Two shillings for a half-pound cannot be said to be cheap, when we state that it must have cost the manufacturers probably a penny, as we will show directly.

On the next day we forwarded our purchase to an eminent analyst. We will let him take up the story for a while, for we must confess that the following report nearly took away our breath:—

Analytical Laboratory,
Vestry Hall, Paddington Green, W.,
February 14th.

Dear Sir,—On February 10th I received from you a half-pound tin of "Du Barry's Revalenta Arabica Food." This was enclosed in unopened wrappers. I have now made a careful chemical and microscopical examination of the material.

I am of opinion that it consists solely of lentils ground up into a fine powder. I could detect no added ingredient possessing any medicinal or other properties.—I remain, yours faithfully,

ALF. W. STOKES, F.C.S., F.I.C.,
Public Analyst.

To the Editor of HYGIENE.

With this report Mr. Stokes returned to us the wrappers and copy of testimonials which they had contained. The testimonials were, as far as we took the trouble to ascertain, similar to those which attracted our attention in the newspaper advertisement; and there was the same lengthy list of diseases for which, to use Du Barry and Co.'s own words, "this delicious food is the *only* cure." We have put the word "*only*" in italics, because we never before heard of lentils being the only cure for consumption, deafness, diabetes, dropsy, paralysis, and many other serious disorders. On the wrapper is given a small woodcut of a number of black men, very scantily clad (they look as if Revalenta had almost cured them of clothing), presumably engaged in cultivating lentils, with the words printed underneath:—"Discovered, exclusively grown and imported by Du Barry and Co."

If Du Barry and Co. really discovered lentils, their firm must, indeed, be of long standing, seeing that this leguminous plant was well known to the Hebrews and other ancient nations. As to Du Barry and Co.'s exclusively growing lentils, we should like to learn where they accomplish this extraordinary feat, and why lentils can be bought at any corn chandler's shop for about twopence the pound, at which rate "lentils ground up into a fine powder" (*vide* Mr. Stokes' report) can be purchased in bulk at Mark-lane.

"In the name of the Prophet, figs," was the cry of the itinerant fruit-seller in the old Eastern tale. "In the name of the *profit*, lentils," is the new reading suggested by Du Barry's Revalenta Arabica.

TOBACCO: WELLINGTON AND NAPOLEON.

THERE is scarcely a youth in the present day who does not regard it as an evidence of manliness in the highest degree to be able to smoke a pipe, cigarette, or cigar; but we presume that all will be ready to admit that the two names at the heading of this short article are those of great men, who have left their mark on the scroll of history. Yet neither of them could endure the fumes of tobacco.

Wellington, just after his return from the Peninsular Campaign, was induced to join the Duke of Cumberland and some other field officers in the smoking-room at the hotel in Portsmouth where they were staying.

"I sat," said Wellington, in after-life, "behind my pipe, whiffing away with a feeling of wonder, and

REVIEWS AND NOTICES OF BOOKS.

watching with interest the countenances of the rest of the company." Other novices at smoking were there besides Wellington. As these left the room one by one, but failed to return, he noticed that the old smokers were on the look-out for him to follow the seceders in his turn. He continued, however, to puff away, saying to himself, "Well, it will come to an end, I suppose." And so it did, before the pipe was finished, and in such a decidedly unpleasant manner that the great warrior never attempted to smoke again.

Napoleon's efforts at smoking came to an end even quicker than those of his life-long opponent, and he was never known to attempt smoking but once, although later on he became a votary of the snuff-box. The Persian ambassador having presented Napoleon with a magnificent Oriental pipe he wished to give it a trial. After being instructed how to proceed, he desired his attendant, Constant, to light the pipe for him. The pipe was duly charged and lighted by Constant, who can tell the rest of the tale himself. "I obeyed, and returned it to him in order. But scarcely had he drawn a mouthful, when the smoke which he did not understand how to expel from his mouth, turned back by his palate, penetrated into his throat, and came out by his nose, nearly blinding him. As soon as he had recovered breath, he said, 'Take that away from me—what an abomination! Oh, the brutes! My stomach is quite upset!' In fact, he felt himself so much annoyed for more than an hour that he then and there renounced for ever all desire to try the experiment again."

How, now, Masters Dick, Tom, and Harry! If it is manly to smoke, it must be unmanly not to smoke; but, in that case, what can be said of the two greatest commanders of modern times?

M. R. C. P.

Poisoning through eating Hemlock.—Two deaths from accidental poisoning, through eating the leaves of wild hemlock, have occurred at Tyne Dock. Some children were playing on a piece of waste ground, when one suggested that they should eat some of the leaves of the plant *conium maculatum*, commonly known as fool's parsley, which she declared to be cabbage. Two of the children died the same day. It is said that this plant is more poisonous in May than in any other month. Teachers or others connected with the management of schools might, with a moderate expenditure of time and trouble, do much good by giving an occasional short lecture on common plants, specially indicating those which are poisonous, such as hemlock, aconite, deadly nightshade, &c.

THE QUEEN'S ENGLISH UP TO DATE. Beaumont & Co., 39, Southampton-street, Strand. Price 2s.

The tendency of modern literature, especially in the case of the popular "yellowback," seems to be to sacrifice form to matter and time. But rapidity of composition, as *Anglophil* shows in his introduction, is not incompatible with grammatical accuracy; for in this respect the daily papers are as a rule far more correct than the average novel. The array of grammatical blunders that the author has succeeded in bringing together and classifying is indeed formidable; and none the less so because every example is taken either directly, or from a parallel instance in a modern book. A mere glance at the contents would show a careless writer to what slips he is liable; and as a class-book it will be invaluable to the teacher, by bringing prominently before him mistakes which, owing to their common occurrence in daily conversation, he would otherwise be apt to overlook.

THE PHANTOM HAND. By C. M. Hawksford. London: Beaumont & Co., 39, Southampton-street, Strand, W.C. Price 1s.

This little book forms not only an exciting and sensational story, but an interesting psychological study. In its latter aspect there is much that is suggestive in the work, though its size scarcely permits of that careful working out which, in the hands of a great master, produces conflicting emotions in the mind of the reader. Robert Veriker, the central figure, is a creature of impulse, who can put aside unpleasant thoughts almost at will; and the story is well worked out in the natural result of the influence of circumstances on such a character. But, in spite of everything, one feels that he is rather a villain than a hero. He never writes to the girl, to whom he is pledged, to tell her that he is married; nor has he any compunction in giving his stained hand to another innocent girl. This is consistent with his character: but somehow one just fails to feel that touch of sympathy which George Eliot succeeds in arousing in us for the villain-hero, Tito Milema; and in the end Robert Veriker's punishment seems all insufficient for him. Still the story is true to life, in that character and circumstances act and react on one another, and can be recommended as possessing an interest beyond that of a mere sensational novel.

NEWS AND NOTES.

The Thames at Chiswick has got into such an unsatisfactory and insanitary state that the Local Board have resolved to send a strong memorial on the subject to the Thames Conservancy Board, calling the attention of the latter authority to the accumulations of putrid matter on the foreshore of the river, causing most offensive smells at low water. The long drought and the removal of enormous quantities of water daily by the various water companies supplying London have greatly reduced the bulk of the water at this part of the river, rendering the bed exposed at many points, and bringing in view large collections of mud and refuse matters deposited in the river. The amount of pollution from house-boats is more marked in this than in any previous season, and constitutes a nuisance in the locality where they chiefly abound, as well as a menace to the health of the metropolis, through the supply of Thames water for drinking and domestic purposes. Must we wait for a fearful epidemic to sweep off scores of thousands of people, or will the authorities promptly grapple with the evils arising from supplying millions of persons with water from so polluted a source?

* *

Women as Sanitary Inspectors.—The sanitary committee of the Marylebone Vestry have lately appointed a female sanitary inspector. Dr. Blyth, the medical officer of health, in his report proposing an increase of the sanitary staff, suggests the appointment of a second female inspector, and says that this suggestion is based upon a just view of the amount and nature of the work which recent legislation has thrown upon the Sanitary Authority. The duties of such female officers would be mainly, though not entirely, to carry out the sections of the Factory and Workshops Act relating to the employment of women; and investigation has shown that a very large number of women are, as a fact, employed both as in and outdoor workers in dress-making, millinery, and other occupations. These female inspectors would also be useful in the disinfection of individuals of their own sex, or children, many of whom have no other clothes than those they are wearing, and which cannot, therefore, be taken away to be disinfected.

* *

Cebro is a new beverage possessing excellent qualities. It is agreeable to the palate, refreshing and reviving, and an aid to digestion; and can be taken at any time, either alone or with any kind of spirits or wine. As Cebro is aerated with phospho-carbonic gas, and not with carbonic acid gas, made in the ordinary way, it is not open to the objections frequently made against seltzer, soda, and potass water, that their free use produces dyspepsia, flatulence, and nervous depression. It will be welcomed as a valuable addition to the list of wholesome dietetic beverages, and must become a universal favourite, especially as it is sold at a very reasonable price.

"In a Hotbed of Fever" is the touching title of a small pamphlet by our contributor, Mrs. Warner Snoad, whose name is well known in many philanthropic movements. Ceaseless in the cause of charity, Mrs. Snoad Warner has impaired her health by her untiring efforts. The object for which she desires to enlist the sympathy of her readers in this pamphlet is a Nursing Society, established at the East-end, amongst the teeming, poor population of West Ham and Plaistow, which places, though numbering some 500,000 inhabitants, have no fever hospital, or means of isolating infectious diseases. The address of this voluntary nursing society is St. Mary's Nurses' Home, Plaistow, E., which is energetically, though unobtrusively, endeavouring to cope with the sickness, the wretchedness, the helplessness of the district. All who wish to further the good work this institution is doing should, without delay, forward their contributions in aid to Miss Katherine Twining at the Home.

* *

Curious Caution as to Bathing Accidents.—Printed notices on this subject are common just now at seaside places, but we have not met with in England the suggestive one which is said to have been posted at a French sea-bathing resort, much frequented by Parisians:—"Caution.—When rescuing ladies from drowning, do not catch at the hair, as that not unfrequently becomes detached, and is then left in the grasp of the rescuer, while the drowning person is in imminent danger of disappearing under the surface of the water."

* *

Fish.—Some idea of the waste arising from the capture of undersized fish may be formed from the fact that in the course of ten years an average quantity of more than seventy tons per annum has been for this reason seized by the officials at Billingsgate and destroyed. Statistics of the Board of Trade show that the total quantity of fish landed on the British coasts in 1886 was 6,412,433 cwt., averaging 11s. 6d. per cwt. In 1891 the average value per cwt. had increased to 15s., the total value being £4,481,000.

* *

The French Vintage, which from 1850 to 1860 had averaged somewhat more than 30 million hectolitres annually, fell in the period from the last-named year to 1879 to only about one-sixth of this average (namely, 5 million hectolitres), owing to the ravages of the phylloxera. After an immense amount of trouble, and at great expense, this troublesome pest has been practically got rid of, and for some years past the quantity of wine produced has averaged nearly 30 million hectolitres.

* *

Hitting the Right Nail on the Head.—"Doctor," said a gouty patient to a physician who knew his habits, "I want you to be thorough, and to strike at the root of the disease." "I will," exclaimed the doctor, at the same time bringing his cane down sharply on a decanter which stood on a sideboard close by.

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EDITORIAL AND PUBLISHING NOTICES.

EDITORIAL.—The Editor begs to express his thanks to numerous correspondents, and to state that he will be pleased to receive any articles or correspondence coming within the scope of *HYGIENE*, reports of medical officers of health, items of general or local sanitary interest, newspapers (marked at the part to which it is desired to draw attention), &c.

PUBLISHING.—The terms of subscription not having been raised, although under the new arrangement fifty-two numbers instead of twelve will be sent out annually, all subscriptions now running will continue good for the original period.

SPECIAL.—In consequence of many representations from newsagents and booksellers that Saturday is a most inconvenient day of publication, *HYGIENE* will in future be published every Friday, commencing with Friday, June 9th.

HYGIENE will be forwarded, post free, to all parts of the Kingdom, and to all countries within the Postal Union (including the United States, Canada, France, Germany, Belgium, Italy, Austria, Hungary, Spain, Portugal, Switzerland, the Netherlands, Russia, Denmark, Sweden, and Norway), on the following prepaid terms:—Twelve months, 6s. 6d.; six months, 3s. 6d. Subscription terms for Australia, India, the Cape, and all other parts of the world can be ascertained by inquiry at *HYGIENE* office.

ADVERTISERS are requested to bear in mind the greatly increased circulation of *HYGIENE*, with its weekly issue and reduced price. In addition to the large, regular circulation, many thousands of copies are distributed annually to sanitary officials, medical men, private addresses, public libraries, clubs, hotels, &c.

THE ADVANTAGES OF PUBLIC ABATTOIRS OVER PRIVATE SLAUGHTER-HOUSES.

BY STEPHEN SMITH, M.D., Ex-President of the American Public Health Association.

NOTWITHSTANDING the efforts made to keep private slaughter-houses in a proper sanitary condition, instances are constantly occurring which prove too plainly that all that can be done, coupled with the indefatigable vigilance of sanitary inspectors, is insufficient to cope with the nuisance and ever-recurring danger to public health arising from the existence of these "vested interests."

Frequent inspection and occasional prosecutions in very bad cases may develop more caution on the part of the butcher, but they do not in any proper sense abate the nuisance.

During certain portions of the day the yard connected with the private slaughter-house is strewn with liquid ordure, the walls are bespattered with filth, and the drains are full of animal refuse matter; and however thorough the cleansing may be, the walls and floors become so saturated that the whole establishment reeks with foul odours, especially during the warmer months of the year.

The slaughter-houses of every populous place should be put on the same basis as the markets, so closely are they connected with the public health. The business of slaughtering has always been recognised as offensive, and on that account made amenable

to municipal regulations. But there is a far more important sense in which they should be regarded as subject to public control, viz.—as the medium of food-supply to the people. Considered in their twofold influence upon the public health—first as sources of possible nuisance, and secondly as liable to furnish impure meats—health authorities should exercise the most rigid supervision in regard to the details of the management of slaughter-houses. How can such supervision be most advantageously exercised? We answer, by the concentration of the business in well-appointed abattoirs. These establishments should be so located, constructed, and conducted as to secure the utmost degree of cleanliness and the most direct and complete oversight by sanitary officers.

We may state the advantages to be derived from concentration as follows :—

1. Facilities should be afforded for the thorough inspection of cattle and meat.—It is of the first importance as a sanitary measure that there should be ample facilities for the intelligent inspection of the cattle to be slaughtered, and of the meat to be exposed for sale in the markets.

The temptation to slaughter diseased cattle and to sell unwholesome meat in large towns is very great, and the opportunities offered are abundant when the business is entirely unregulated, and not subjected to the surveillance of competent sanitary officers. In every large town where no proper supervision of the trade exists there is a class of men who deal in diseased cattle and unwholesome meat. In the cattle markets they purchase the sick, lame, or injured stock, and in the meat markets they buy the rejected meat, and then retail this unwholesome refuse of the slaughter-house to the poor.

To guard the people against the imposition of diseased meat the best regulated cities require the careful inspection by expert officers of every animal brought to market. All obviously diseased cattle are sent to the offal yards, and the suspected are detained in yards or stalls for observation. All the meat offered for sale in the public markets must previously undergo inspection. In this manner the people are protected from the liability of receiving unwholesome meat.

But no sanitary inspection worthy of the slightest confidence can be maintained over the meat supply of the community where a system of scattered slaughter-houses is permitted; cattle suffering from any of the numerous forms of disease, rendering their flesh unfit for human food, may pass unnoticed and unchallenged

to any private slaughter-house, and the carcase may go thence to the meat market without hindrance.

The only practicable and indeed possible method of instituting an adequate system of cattle and meat inspection is the concentration of the business in large and well-regulated abattoirs.

2. Abattoirs properly conducted tend to the purity and preservation of meat.—Fresh meat affords during the warm months of the year a fertile soil for the development of the germs which originate in connection with decaying or decomposing matter, vegetable and animal. The germs are, of course, the most abundant where there is the largest amount of organic matter. When implanted in fresh meat, at a favourable temperature, they at once begin to develop, and the meat commences to undergo putrefactive changes. In certain localities meat cannot be preserved in the height of summer, except on ice, for even an hour. And it is capable of demonstration that meat slaughtered in filthy stalls and exposed to the emanations of unclean yards, areas, drains, etc., quickly takes on putrefaction. If we add to this exposure the filth of the slaughter-houses, and additional exposure to the filth of the street as the cart containing the meat is driven to market by the butcher, we have the most certain conditions which could be devised for furnishing the people of any city with unwholesome meat. That such a meat supply is detrimental to the health of the people there is no doubt. The effect of inoculating a wound, such as a cut on the lip, with meat in this state is most dangerous, often resulting in violent inflammation and speedy death. But in the public abattoir we have the conditions changed. All is scrupulously clean; the air is untainted by decomposing organic matter of any kind; while the meat is hung up in a cool, dry atmosphere.

3. The large superficial area occupied by the business would be diminished to the least practicable space, and the entire establishment could be preserved in a much greater state of cleanliness than that of any one of the private slaughter-houses now in use. It has been erroneously taken for granted by some people that if all the slaughter-houses should be concentrated in one establishment, this single establishment would become as many times more offensive as there are slaughter-houses so concentrated. This view is not only absurd, but practically the reverse is true. If, for the loosely paved yards, the imperfectly drained areas, and the absorbent floors of existing private slaughter-houses, widely scattered, we can substitute a single yard with impervious surface, capable of being flushed

at all times with water,—a building with non-absorbent floors, and offering facilities for rapid and thorough cleansing—it is evident that the single public abattoir must be far better for the public health than a number of scattered, imperfectly constructed private slaughter-houses.

4. Concentration of slaughtering will abate the nuisance of fat-melting, hide-curing, gut-cleaning, and other offensive kinds of work arising out of the business. Not the least of the evils resulting from the maintenance of numerous private slaughter-houses are the various offensive businesses referred to. These trades are carried on by independent operators on their own premises, and always in a most slovenly and negligent manner. The butcher is likely to retain the fat until it becomes putrid, and then it is carried through the street to some dilapidated fat-melting house, where it is melted down with imperfect apparatus; the hides are cured by another small and irresponsible dealer in any old building which he can secure; the entrails in a state of active putrefaction are taken by another dealer through the city to any broken-down back-building, where the workmen, free from observation, can manipulate them for days together.

PATENT MEDICINES.*

By the EDITOR.

NO. V.—THE HISTORY OF PATENT MEDICINES: THE SEQUAH "PRAIRIE FLOWER" AND OIL.

ONE of our colonial subscribers asks us how, having regard to the origin of the word "patent," that term came to be applied to preparations of which the composition is kept secret. The misnomer arose in this way. During the reign of George III., whose obstinacy and incompetence lost our fairest colony, America, and raised the National Debt from £138,000,000 to £794,000,000, the Ministers were frequently much

exercised in their minds as to means of raising money. The Chancellor of the Exchequer bethought him of quack medicines, and an Act of Parliament was passed (23rd George III., cap. 62) "to grant to His Majesty a stamp duty on licences to be taken out by certain persons uttering and vending medicines, and certain stamp duties on medicines sold under such licences, or under authority of His Majesty's Letters Patent." A subsequent Act, in 1785, designated these medicines as "prepared or compounded by any person or persons whatsoever" who had or claimed to have "any occult or secret or unknown art, or some exclusive right or title to their manufacture," the same being advertised or recommended as "specifics or otherwise for the cure or relief of any ailment or malady incident to, or in any way affecting the human body." The *otherwise* in this definition applies quite as much to quack medicines at the present day as it did then.

It will be seen that the term "patent" applied to these secret quack compounds is used in the sense of "privileged" (by letters patent), and not of "open or divulged."

In 1875 an Act was passed reducing the medicine licence duty, which previously had ranged from five shillings to forty shillings in different localities, to the uniform amount of five shillings throughout the United Kingdom. The consequence of this reduction was to greatly increase the number of patent medicine vendors. In 1874, the year before the passing of the new Act, the licences taken out were 12,430; now the annual number is almost double that—considerably over 20,000. The question naturally arises, who are these patent medicine vendors? The official register of chemists and druggists for 1888, kept by the Pharmaceutical Society of Great Britain, contained 13,812 names. Deducting one-third, as being assistants and not carrying on business on their own behalf, we can account for (roughly estimating) 9,000 chemists, leaving nearly 13,000 licences in the hands of various tradesmen—grocers, drapers, and general shop keepers wholly unacquainted with even the rudiments of chemical knowledge, yet authorised by law to deal in secret medicines, often of the most dangerous character. The ease with which these can be procured—we refer now more particularly to opiate and narcotic preparations—has led to a wide-spread system of home-drugging, while it is undoubtedly responsible for many deaths, especially of children, not invariably arising from mere misadventure, but always difficult to detect and bring to light. Well might a coroner of large experience remark that, "it is impossible to say how many infants are killed annually by soothing syrups." Every preparation of

* Some of the articles constituting this series have already appeared in *HYGIENE* when published as a monthly magazine, and were reprinted in two volumes. But as one of these—Vol. I.—is out of print, we propose, at the request of many readers, to commence a new series, as much of the matter will doubtless be fresh to the great majority of the readers of *HYGIENE* in its altered form. New reports and analyses will appear from time to time. No. I. (May 13th) included:—Patent Medicines; Patent Medicine Law; Mattei's Electro-Homœopathic Remedies. No. III. (May 27th), Clarke's Blood Mixture. No. III. (May 27th), Clarke's Blood Mixture, Chlorodyne and other Opiates. No. IV. (June 9th), Revalenta Arabica.

this class that we have examined contains opium in some form or other.

Various remedies have been suggested for this most unsatisfactory condition of things. Some propose the increase of the now very small licence duty to such an amount as would deter many of the present holders from dealing in such questionable and even dangerous merchandise. Others, again, urge the repeal of the stamp duty on patent medicines, because it conveys to the public a sort of Government guarantee. To our mind the question of the increase or removal of the stamp duty is of a comparatively minor character, and, as it is of a fiscal nature, might be left to the consideration of the Chancellor of the Exchequer for the time being. We should, however, lean to an increase of the stamp duty, and to a very great increase of the patent medicine licence, which ought to be restricted to chemists and druggists alone, so as to facilitate bringing the articles sold as patent medicines under the provisions of the Pharmacy Act, 1868, also called "An Act to regulate the sale of poisons," out of which section xvi., enacting "that nothing hereinbefore contained shall extend to or interfere with the making or dealing in patent medicines," should be struck.

But, the great reform necessary is to take a leaf out of the legislature of Continental countries, and to make it unlawful to sell any patent medicine without previously placing on the bottle or box in which it is issued to the public a legible description of the contents. By law the sale of certain articles of food, such as chicory and margarine, is prohibited without a label apprising the purchaser of the nature of the substance which he is buying. How much the more is it desirable, in the interests of the purchasers of patent medicines, that they should be duly warned as to the composition of articles which contain potent drugs inimical to health and often dangerous to life?

Further, if a stamp duty be continued, it should be clearly made known that it is to be regarded as of the nature of a tax, and not—as now commonly supposed—as an authoritative guarantee of the quality or value of the preparation. "Protected by Her Majesty's Royal Letters Patent" is a statement which has deluded hundreds of thousands of purchasers of quack remedies.

But if the manufacturers of quack medicines are silent concerning the actual ingredients of the stuff concocted by them, they cannot be charged with similar reticence respecting the assumed virtues of such components. Bold assertion is their sheet-anchor, and equally bold advertisement is the talisman with which they conjure the coin out of the pockets of their credulous customers.

The proprietors of quack medicines are evidently indoctrinated with the views expressed by Carlyle when he said, "Great Britain contains so many millions of people—mostly fools," and they go for the "mostly" with an energy and determination worthy of a better cause, sparing no expense, and stopping short at no assurances.

Some little time back we bought a small bottle (two ounces for two shillings) of Sequah's "Prairie Flower," and sent it to an analyst for the purpose of examination. But why examine it (some may ask) in face of the positive statements and certificate published in the prospectus which accompanied our purchase? Well, we like to be independent, and as we did not stand in need of Sequah's stuff ourselves, while we have too much regard for our quadruped friends to experiment on them, we had no alternative between smashing our shilling per ounce treasure or forwarding it to Mr. Stokes, so to his laboratory it went.

In a circular headed "Sequah's 'Prairie Flower' and all about it" is a most glowing description of the mineral springs of the Pacific slope of North America. From this the transition is easy to the wonderful springs on the borders of the Montana Territory, "the most noted of them all" having been secured by purchase by Sequah, Limited, "as far as Europe and the United Kingdom are concerned." If anyone should doubt this, he can test it by application to the "company's London solicitor," in whose hands the legal documents have been placed; but, through some singular oversight, both the name and address of this official have been omitted. Next, we learn that the Edinburgh *Evening Dispatch* (no year given) suggests that invalids, to obtain benefit, must go out and take the waters on the spot. "This is all very well," continues the compiler of the Sequah circular, "so far as a few wealthy individuals are concerned, but it is utterly impossible for the poor, for business men, and for the bulk of the middle classes, who can spend neither the time nor the money for so costly a trip. But as the people cannot go to the springs," the writer adds (displaying his ecstasy in capital letters), "SEQUAH HAS BROUGHT THE SPRINGS TO THE PEOPLE. It was found that the water could be concentrated by careful evaporation and still retain its curative virtues; and SEQUAH, LIMITED, took advantage of this fact, and made it their business to bring these waters before the public in a CHEAP AND CONVENIENT FORM. But Rheumatism is closely associated with the great group of STOMACH AND LIVER COMPLAINTS, and it was found necessary, in order to insure a COMPLETE AND PERMANENT CURE, to combine this mineral water with

certain VEGETABLE EXTRACTS, several of which are also valuable Indian medicines, and found in the woods and prairies of the Far West. And thus compounded, PRAIRIE FLOWER is undoubtedly far and away the best remedy ever yet introduced for all sorts of complaints and other CHRONIC DISEASES." Who but a sceptic would doubt the assurances conveyed with the aid of capital letters, ordinary type being quite inadequate for the purpose?

Moreover, we learn from another circular that "this wonderful and world-renowned preparation has been in use amongst the Sioux, Cherokees, Comanches, Apaches, and several other tribes of North American Indians for hundreds of years. Steady, there, Messrs. Sequah, Limited! If the North American Indians have used this "wonderful and world-renowned preparation" for a period extending as far back as the discovery of America, how comes it that you claim to have invented it? We enjoyed for many years a friendship with the late Mr. Catlin, the eminent traveller, who spent much of his life (more than a quarter of a century) amongst the native tribes of North America, and we have, on numerous occasions, discussed with him the primitive remedies employed by the Indians. Never, either in his conversations or in the published accounts of his travels, did Mr. Catlin even refer to the "Prairie Flower." Yet he was a keen observer and a careful recorder of all that related to the habits and domestic customs of the Indians. The fact is that the Sequah writer is all wrong, for aloes, the "botanic extract" found in "Prairie Flower," is obtained from the East and West Indies, where the North American Indians are not likely to have gone in search of that drug, so that the "Far West" statement is obviously *far fetched*. There is absolutely nothing new in the administration, medicinally, of such an old pharmaceutical acquaintance as aloes. Consequently the sole novelty consists in falsely describing the countries whence this drug is procured. Another matter to which we would draw attention is that aloes is uncertain, and in the case of very delicate persons and children often injurious, in its action, unless regulated by other medicines combined with it; but if Sequah, Limited, take so little trouble as not to learn whence a drug comes, they can hardly be expected to inform themselves as to its properties.

At the same time that we sent the "Prairie Flower" to our analyst we also submitted a bottle of Sequah's Oil for examination. The following is a copy of his report upon both articles:—

Analytical Laboratory,
Vestry Hall, Paddington Green, W.,
March 13th.

Dear Sir,—On February 20th I received from you a two-ounce bottle of "Sequah's Oil" and a two-ounce bottle of Sequah's "Prairie Flower." These were still in unopened wrappers, and were sealed by the unbroken patent stamp of the Inland Revenue.

On analysis, I found as follows:—

The "Sequah Oil" consists of a mixture of two-thirds turpentine and one-third fish oil, scented with a few drops of oil of camphor.

The "Sequah Prairie Flower" contains in the two ounces:—

Water	...	...	...	...	735 grains.
Aloes	...	...	...	...	105 "
Carbonate of Soda	...	...	...	...	35 "

and a few drops of the tinctures of capsicum and myrrh.

This medicine being reputed to be made from a "Mineral Water and Vegetable Extracts found in the Far West," I carefully looked for the usual constituents of ordinary mineral water; but, excepting the carbonate of soda, I found none.

I remain,

Yours faithfully,
ALFRED W. STOKES, F.C.S., F.I.C.,
Public Analyst.

The carbonate of soda is apparently added for the purpose of keeping the aloes in a state of solution, so that it looks very much as if the vaunted "Mineral Water" came from no more remote source than the Sequah house-tap.

As regards the Sequah Oil, that is decidedly fishy, like the method resorted to by Sequah, Limited, for getting publicity for their wares. The bulk of quack preparations obtain notoriety through newspaper advertisements and mural posters; but Sequah, Limited, taking advantage of the falsely assumed connection between a watery solution of East and West Indian aloes and the North American Indians, send out itinerant lecturers—half sham-Indian, half English "Cheap Jacks"—into the market-places and highways to spout rhapsodical praises of Sequah This and Sequah That. These lecturers, more numerous by far than the knaves in several packs of cards (we mention the knaves through a natural sequence of thought), are distributed in various towns, and succeed at any rate in one thing, and that is in disturbing the peace and quiet of any locality that may be pestered by their presence. Being glib of tongue, ready with clap-trap talk, and liberal in treating the mob, they soon get around them a set of partisans, whose number is rapidly swollen by loungers and others.

In the course of a recent trial for slander, the defendant being a Sequah lecturer at Croydon, it was stated by

counsel that the total number of these men was upwards of a dozen; nearer a score, indeed. Yet their hearers are led to foolishly imagine that each is the *only* "Sequah"; while, as a matter of fact, there is not a single fellow amongst the whole crew entitled to the name.

A correspondent has favoured us with a description of one of these meetings, from which we will quote:—

In a field there was drawn up a highly-decorated circus-car, which during part of the day had paraded the streets with a brass band sitting in it. Flaring lamps fixed on poles served to brilliantly light the scene. Preceded by a band the Sequah lecturer drove up to the car in a two-horse landau. Taking a seat in the front of the car, he proceeded to produce letters from his pocket, and open and silently peruse them, apparently jotting down their contents. Meanwhile he would now and then be interrupted by messengers bringing bouquets of flowers, fruit, and more letters. After about ten minutes or more of this elaborate dumb show he would rise and remove his overcoat and broad-brimmed sombrero hat, showing a mass of black, greasy, wavy hair, a string of boars' tusks round his neck, and garments of the cowboy style with which Buffalo Bill's followers made us familiar. Then he would read aloud a number of letters of thanks for cures effected, or asking for more medicine. After a little talk about the extent to which the Sequah remedies were spreading, he fitted on his forehead a small electric lamp, the portable battery of which was carried in his pocket. Those persons who desired to have teeth removed were invited into the car. I saw between thirty and forty men, women, and children step up, one at a time, and, with the aid of the electric lamp, their teeth were taken out, some having as many as three or four extracted. The operation was rapidly performed, but an ominous snap now and then told to the initiated that a tooth had been broken in. When the cries of the sufferer who was being operated on were loud and expressive the brass band stationed at the rear portion of the car struck up lustily, so as to drown the sound, and the only air that they played during the whole time was singularly selected, being the negro melody "Who's dat calling so sweet?" Then came more boasting and more letter reading. After this those in the crowd who had been cured of rheumatism were requested to come into the car. Some four persons accepted this invitation, bent their arms up and down, which they said they had not been able to do previous to treatment, or jumped about before the spectators. Then followed the sale of Sequah preparations at two shillings a small bottle, and the stuff went off at a lively rate. Occasionally those having rheumatic limbs were rubbed in the car by the lecturer or his attendant for half an hour or more, and sometimes said that they felt better. When the rheumatic cripples had ascended the car, the lecturer generally broke their crutches, then "massaged" their limbs, and finally bade them to walk away. One unfortu-

nate fellow hobbled from the car to the edge of the field; but, crutchless as he was, he could get no further, despite the vigorous and long rubbing he had been subjected to.

It is now well understood that any benefit which the sufferers may receive is entirely due to the "massage," or careful rubbing; also, that the cases are *selected*. There is no inherent curative virtue in the Sequah Oil, as shown by the circumstance that, in the majority of cases of alleged cure, the relief is not permanent, while home trials frequently fail altogether.

Even the so-called cures are not all so genuine as they are made to appear, as the following anecdote will prove. A lady residing at Surbiton Hill had a gardener, who, though somewhat stiff in his joints, after the wont of gardeners through the nature of their employment, could do a good day's work every week-day. When a Sequah lecturer was at Kingston-on-Thames this lady heard so much about him that she made up her mind to drive down and hear him hold forth. As she sat in her carriage outside the concourse of people, what was her astonishment, on seeing a patient hoisted into the car (with much labour by four men), at recognising in him her gardener! After a while she saw him run nimbly down the steps. Next day she taxed him with all this, and said, "Surely, gardener, you could have got into the car without giving all that trouble?" To which he replied, "Oh, yes, Mum, but them's the orders!" From other reports which have reached us, it is evident that whatever doubt there may be as to the disorders which the Sequah specifics can relieve, there is room for none as to the definite nature of the orders issued to exhibition-patients by the Sequah lecturers.

The tooth-drawing, which helps greatly in also drawing a crowd, while the rapidity of it visibly impresses the spectators, is rather mixed in its results. "Who's dat calling so sweet?" may serve effectually to drown the cries of a sufferer who gets a broken tooth for his pains, but it does not do away with the significant fact that, as we have heard dentists assert, there is always a greater demand for stump-removal after the Sequah lecturer has left a town than there was prior to his visit. Sound teeth must not unfrequently be forfeited, too, in the hurry of extraction. A dental surgeon, practising at the West End, told us that, being at Wimbledon when a Sequah lecturer was performing, he had the curiosity to get nearer, and as a man who had just had a tooth extracted passed from the platform to the crowd he asked the man to let him look at the tooth, which the operator had put into the patient's hand. "Why, it is a sound one," he exclaimed, whereupon such a hostile movement was made

towards him by some excited and apparently more than ordinarily interested Sequah supporters that he found it prudent to withdraw himself from the crowd.

ON HAY-FEVER, HAY-ASTHMA, OR SUMMER-CATARRH.

BY THE EDITOR.

(Continued from page 54, June 9th.)

It has been commonly put forward by writers on medicine, in their brief allusions to hay-fever, that women are more subject to this affection than men; the contrary is, however, the fact, for males suffer from it, according to my experience, much more frequently than females do. My conclusions on this point are supported by a tabular statement in Dr. Phœbus' book of cases, collected from various sources, which actually gives a proportion of two men to every woman affected by hay-fever. The cases which have come under my knowledge during thirty-five years present a corresponding proportion of males, as compared with females, suffering from this affection.

The majority of the patients whose cases have been tabulated by Dr. Phœbus were persons of nervous or sanguineous temperament; but where the predisposition to the disorder exists, persons of any diathesis may be affected. I have often been surprised at observing the otherwise healthy condition of persons suffering from hay-fever. Many of my hay-fever patients have told me that during ten months of the year they enjoyed robust health, and that it was only during the existence of hay-fever that they were at all troubled by illness.

Another point worthy of notice is the hereditary tendency to suffer from the disease. Many years since I knew a medical practitioner in Warwickshire who was affected annually by hay-fever; and I have been lately informed that his surviving children, now grown up, are equally subject to its attacks. Numerous additional cases of hereditary predisposition have come to my knowledge both in my own practice and in that of other physicians.

I have already referred to an instance where a gentleman, his child, his two sisters, his uncle, and other relatives were affected by hay-fever, and I could readily give other examples of the hereditary nature of the disorder; indeed, in the majority of the cases of hay-fever, I find that the parents or other near relatives of the patients have suffered from hay-fever, asthma, gout, or intermittent fever.

In connection with the family history of patients

suffering from hay-fever, it is interesting to note the close relation which evidently exists between this disorder and asthma, bronchitis, gout, and intermittent fever. In seven cases out of ten which have come under my observation, either the parents or other very near blood relations suffer, or have suffered, from one or other of the four disorders that I have enumerated.

In the family of an asthmatic or gouty person, one member may be affected by asthma or gout, while another may suffer from summer-catarrh. Amongst my notes of cases of summer-catarrh, I have some details of a family consisting of two sons and two daughters, all of whom suffer from this affection. The father is a gouty subject, and the mother is asthmatic; other members of their respective families have suffered from gout and asthma. Intermittent fever, or ague, also bears a close relation to hay-fever, rendered more remarkable by the periodicity shown in each of these disorders.

Dr. Bostock believed that hay-fever was a disorder confined exclusively to the upper and middle classes, and the researches of Dr. Phœbus has led him, in some measure, to the same opinion.

One circumstance must, however, be considered before arriving at a positive conclusion on this point—viz., that the poor, being less able to spare either time or money than persons who are better off, are in a great measure prevented from seeking medical aid until they are almost incapacitated for work, and consequently when suffering from an affection which, like hay-fever, runs a definite course and then ceases, are less likely to come under medical observation than richer individuals. I have certainly seen many well-marked cases of hay-fever amongst the poorer classes, some of which I shall presently detail. Dr. T. W. King, writing on this question in the *London Medical Gazette* for 1843, says: "I have known of its occurrence in marked aggravated forms, which I attribute to difficulties and exposures of a severer kind to which the poor are subject. I have very little doubt, also, that these same catarrhal disturbances in summer are of a more frequent occurrence under a less distinct form; namely, that of aggravation of affections which in some degree the sufferer considers as habitual and almost natural to him."

Hay-fever has been more frequently observed in England than in any other country; but the apparent greater prevalence of the affection in this country, as compared with others, may in some measure be probably due to the attention which has been directed to it by the writings of Dr. Bostock and others. From different published accounts, it is evident that the disorder is not at all uncommon in Germany, Belgium, France,

and Switzerland ; and cases have also been recorded of hay-fever occurring in Italy, Austria, Russia, Denmark, and other European countries.

Mr. Simpson, quoted by Dr. Phœbus, says that his eldest son, who is suffering from hay-fever, "has travelled in various parts of Africa, but, at the proper season, has been more or less affected by the malady. He has had it in Greece, Turkey, Algeria, Norway, and Lapland, as well as in England and Scotland."

The mention of Africa in the preceding paragraph reminds me of a patient born at the Cape, and resident there for many years, who informed me that he invariably suffered from an illness similar to hay-fever during the quail shooting season, when he used, in pursuit of game, to traverse the extensive fields of barley, &c., in the up-country districts.

A patient of mine suffered severely from hay-fever every summer, during a residence of ten years in New Zealand, where, he tells me, the affection is very common. I have also had under my notice persons who have suffered in Australia, India, and other distant colonies, and in various parts of Europe.

It is known to attack many persons in America ; and Dr. Dunglison, of Philadelphia, in his "Practice of Medicine," bears testimony to the fact that "summer bronchitis," as he terms this affection, is as prevalent in the United States as it is in Europe. I saw an undoubted instance of this affection in a gentleman, a native of one of the States, when I was in New York, some years since ; he told me of several other sufferers with whom he was acquainted.

An analogous affection, attributed to the odour of the roses when in bloom, is by no means uncommon in some parts of the United States, where rose-trees are cultivated in large numbers. I have myself seen in the States several cases of this disorder, which is known by the names of rose-cold, rose-catarrh, rose-fever. It has also been observed in England. Not long ago I received from one of my patients a graphically-written description of the sufferings which he always endured upon entering, during the summer season, any room in which flowers had been kept for some time, with the windows and doors closed. In other cases, individuals liable to summer-catarrh find it impossible to remain in heated rooms where numerous flowers are placed, as at a dinner party, or in some opening into conservatories containing flowering plants. Many people will, probably, be disposed to attribute the feelings of the patients in such cases to mere whim or fancy ; but, after all, there is no reason why we should disbelieve the statement of persons of education and position, who have

no inducement to practise deception, and whose uncomfortable, and often peculiarly distressing, symptoms are palpable to any observer who may happen to witness them.

The sense of smell, like the other faculties, is liable to undergo modification or intensification (so to speak) at times. Everyone is aware how painfully acute the senses, especially those of hearing and seeing, become during exhausting illness and in certain nervous conditions ; and the faculty of smelling is singularly subject to variation, both in disease and health. Numerous well-authenticated cases have been recorded of individuals, evidently in the enjoyment of good health, who have been suddenly affected by the smell of some flower or animal. Some persons cannot bear the scent of particular flowers, such as, for instance, roses and geraniums ; and an anecdote is told of a distinguished general who, although he had gone through many campaigns with great bravery, always turned pale and fainted at the smell of roses suddenly held before him. Others, again, are visibly disturbed and annoyed by the smell of different animals. Dr. Carpenter relates, in his "Principles of Human Physiology," the case of a blind gentleman who could always tell, by his sense of smell, whenever a cat came into the room.

Hay-fever is more frequently observed in rural districts than in towns, and in the suburbs than in the central parts of large cities ; and it is also more common in localities where grass is chiefly grown than those in which wheat crops are principally cultivated, or which are situated near to the sea-coast.

Although hay-fever is generally observed in rural districts, it does not follow, as some writers have advanced, that residents in large towns are altogether exempt from its attacks. I have seen the affection on many occasions in persons living in London ; in Portland-place, Grosvenor-square, Bond-street, Kensington, Bayswater, Blackfriars, Thames-street, City-road, Houndsditch, Hackney, Islington, and Pimlico, for example.

The following case, originally published in a paper of mine, on hay fever, in the *Medical Times*, furnishes a good illustration of the fact that persons susceptible of its attacks do not escape, even in London.

T. G—, a young man of sound constitution, and usually enjoying good health, presented himself amongst the out-patients at the Metropolitan Free Hospital in June, in consequence of his suffering from severe catarrhal symptoms, which were accompanied by intense frontal pain, headache, giddiness, lassitude, and prostration of strength. The patient had a harsh, dry cough, and he complained of a disagreeable sensation of itching,

and irritation in the fauces and trachea. The pulse was weak and rapid, averaging from eighty-five to ninety-five beats in a minute; the tongue was dry, and partly covered with a white fur; the urinary secretion was of a high colour, and very scanty, and the bowels were obstinately confined. Learning that the patient was in the employ of a wholesale hay-salesman, I suspected the real nature of the case; and, on further inquiry, I elicited the important facts that he lived in a house situated in a yard where large quantities of hay were stored; that the attacks of illness could be traced back to a period when some loads of fresh hay had been brought into the yard from the country; and that the patient's wife was suffering from symptoms somewhat similar to, although not so intense as, his own. I directed the patient to reside temporarily at a distance from the hay-stores, and put him under a course of treatment suitable to his case. The man soon recovered, and the same treatment proved equally efficacious in the case of his wife, who also came under my care as an out-patient.

Mr. Cheyne has recorded in the *Medical Gazette* for 1842 a well-marked case of hay-fever, in which the wife of a stable-keeper living near Regent-street, whose lofts were filled with hay recently brought in and having an unusually powerful odour, received no benefit from the ordinary remedies for catarrh or bronchitis, but was speedily relieved from the most distressing symptoms by removal to lodgings at a distance from the place where she had been first attacked.

Another case of a similar character has been described by me in a paper on the subject of "Hay-Fever," published in the *British Medical Journal*. The patient, who came under my care at the Metropolitan Free Hospital, resided in Houndsditch—no very likely locality, certainly, for the production of the disorder by the aroma of hay; but, upon inquiry, I cleared up the case satisfactorily by ascertaining that the patient worked in a room close to a livery-stable, and that, with a regard for ventilation, very unusual amongst the residents in that part of London, he was accustomed to keep the window open, so as to admit air into his room. His illness, which, when he first applied at the hospital, had lasted six days, commenced one morning after some very strong-smelling hay had been brought into the stable-lofts.

(To be continued).

Marriages in England and Wales.—The Registrar-General in his last quarterly return says that more marriages take place in the fourth quarter of the year than in any other similar period.

BRITISH HEALTH RESORTS.*

NO. II.—LOWESTOFT.

SOME years ago, when the Great Eastern Railway Company commenced to supply sea water to the Metropolis and towns on their line, an amusing story was told of an old lady who, having had Lowestoft suggested to her as a pleasant seaside resort, exclaimed, "Oh! not there; I like a place where there is a good, full sea." Evidently the poor old creature had been misled by the company's announcements, and the numerous kegs of sea-water to be seen lying about their stations, into the erroneous idea that they were ruthlessly bent upon emptying the North Sea at that particular spot. Had she been at Lowestoft some weeks back, she would not only have admitted her mistake, but would have further asserted that the waves came rolling in in such volume and vigour that the company must have abandoned their design of leaving Lowestoft high and dry.

The important works of Lowestoft harbour and in its vicinity commenced in 1845 by Samuel Morton Peto, and continued by the Great Eastern Railway Company up to the present time, have led to such a development that the population of Lowestoft, which in 1841 was under 5,000, is now estimated to be nearly 30,000. Mr. Peto, who subsequently received a baronetcy and became Sir S. M. Peto, went to reside at Somerleyton Hall, near Lowestoft, in 1844, and to his exertions the place owes not only the harbour and the railway, but the handsome sea frontage, comprising the Esplanade and the Marine Parade, not surpassed by anything of the kind in the kingdom. To the rapid growth of the town under Peto's fostering directions may be attributed another great advantage, viz., that the regularity and uniformity of the streets and houses constituting the modern portion of the place, South Lowestoft, have given it an air of neatness and cleanliness, making it more like Leamington or Cheltenham than what it was until a comparatively recent period, merely a fishing port.

From our dwelling thus upon modern Lowestoft, it must not be supposed that the town has no history. Few places can show greater antiquity. The Romans, those indefatigable conquerors and civilisers, occupied various stations in the eastern parts of England, and one, called by them Garionanum—which is now the site of the ruins of Burgh Castle—is in the immediate

* The object of this series is to direct attention to the merits of different British Health Resorts, too often overlooked and neglected. No. 1, Swanage, Dorset, appeared in *HYGIENE* for May 13th.

vicinity of Lowestoft. Touching these same Romans, it is probable that the east coast was the part of our island with which they first made acquaintance. In a very scholarly work, entitled "Julius Cæsar: Did he Cross the Channel?" written by the late Rev. Scott F. Surtees, that gentleman, in a most able and powerfully convincing manner, demonstrated from Cæsar's own Commentaries and other great authorities that Cæsar did not invade England by way of the Channel, but that, having completed his campaign on the Rhine, he passed over from thence to the Britannic Islands, and landed at Weybourne, near Cromer, in Norfolk. Mr. Surtees' book was published more than twenty years ago, and it is very difficult to get. If any of our

Lighthouse) stands, being the most eastern point of England—a circumstance which has led to a poetic effusion, affirming that Lowestoft—

"First of all old England's busy towns,
Whispers its orisons and greets the rising morn."

As to its climatic conditions, the annual rainfall is stated by Mr. S. H. Miller, F.R.M.S., to be thirty inches; and the subsoil is gravelly and sandy, and consequently porous, so that surface moisture is soon carried away.

The harbour is formed by two fine piers, extending 1,300 feet into the sea, and enclosing a very large area of water; the north pier is used for business purposes, chiefly connected with the thriving fishing trade,



SOUTH BEACH, LOWESTOFT.

readers can come across it, however, we strongly recommend them to peruse it; every page of it overflows with evidence of erudite research. After the Romans, the Danes—similarly a conquering, though a far less civilising, race—devoted their attention to East Anglia to an extent which must have constituted, in the language of Mr. Mantalini, immortalised in "Nicholas Nickleby," "a demnition nuisance" to its peaceful inhabitants; and one of the Danish visitors, Lothing, about 1047, gave the name Lothingland to the Hundred of Suffolk, in which Lowestoft is situated.

Geographically, Lowestoft is the most easternmost town in England—Ness Point, near which the Low Lighthouse (so called to distinguish it from the High

while the south pier serves as an admirable promenade. There is always a considerable quantity of shipping in the harbour, making it a never-failing source of interest to visitors. The docks in course of construction will add largely to the maritime facilities afforded at Lowestoft, and a double line of railway running adjacent to the docks and new fish-market enables fish to be promptly transmitted to all parts of the country. Some notion may be formed of the extent and amount of property concerned in this industry when it is mentioned that the fishing fleet of Lowestoft numbers more than 700 vessels, averaging in cost from £1,000 upwards, each carrying a crew of about ten persons. In two days of November there were landed at the

fish market 2,300 lasts of herrings, making at the rate of 13,200 per last a total of 39,360,000. In addition to herrings, a large trade is done in mackerel, codfish, haddocks, soles, turbot, whiting, and mullets.

The advantageous marine position of Lowestoft makes it the resort, during the season, of numberless pleasure craft, and the Norfolk and Suffolk Yacht Club House, close to the south pier, is one of the most favourite rendezvous of yachtsmen on the east coast.

Lying inland, within a few minutes by rail of Lowestoft, and connected with the river Waveney by an artificial canal, is Oulton Broad, one of those lakes for which this district is famous. This splendid piece of water is more than one hundred acres in extent, and having been carefully preserved since 1877, under the Norfolk and Suffolk Fisheries Act, it abounds with many kinds of fresh-water fish, especially pike (often very large, and over 20 lbs. in weight), perch, roach, bream, rudd, and carp, together with large shoals of grey mullet, which in the summer find their way up the Yare from the sea at Yarmouth.

The numerous expanses of fresh water lying some miles inland from Lowestoft and Yarmouth form what are called the "Broad." The principal of these are Wroxham, Ormesby, Filby, Surlingham, Rollesby, Hickling, Whiteslea, Somerton, Marsham, Heigham, Salhouse, Ranworth, Rockland, South Walsham, and Burton, in addition to Oulton, already mentioned. For charming scenery, healthful recreation, and thorough change, especially in the case of persons who have been pent up in towns and cities, there is no part of England superior to the "Broad" of Norfolk and Suffolk.

Our illustration, showing the South Beach at Lowestoft, is from a block kindly lent to us by Messrs. Jarrold and Sons, of Norwich, publishers of numerous excellent and cheap hand-books to places on the East Coast.

*DISEASES INCIDENTAL TO WORK- PEOPLE IN CHEMICAL AND OTHER INDUSTRIES.**

(Concluded from page 52, June 9th).

ANOTHER manufacture which has considerably occupied the public attention is that of match-making. Here, still more than in the case of the alkali industry, there has been some danger of sentiment warping judgment, and thus leading to exaggeration of facts. People talk and write of phosphorus necrosis (the

"phossy jaw" of the Salvation Army advertisements) as if it were some new thing. Unfortunately it has been known to the medical profession for many years; reduced to plain English, the term used implies disease of the jaw, ending in death of the bone and its subsequent sloughing away through the action of phosphoric fumes. At first sight it would appear natural, as Mr. Watson Smith puts it, to inquire, why does it affect the match-factory operatives more particularly, and not the workmen in the phosphorus factory? The reasons are explicit enough. The phosphorus-makers suffer very little—indeed, technical books state that necrosis is unknown in phosphorus works—because in the manufacture considerable quantities are dealt with at once, and, as the phosphorus is in either the vaporous or the molten condition until the final stage, it must be kept carefully covered up, and is thus prevented from giving off fumes to any large extent; another reason which Mr. Smith advances is worthy of the attention of employers in noxious manufactures generally, namely, "but few workmen are employed per given quantity of phosphorus; these workmen are experienced, valuable servants, and no doubt command a rate of wages which renders it unnecessary to use anything like frantic haste." A good exemplification of the truth of the old adage that too much whip, too much spur, and too little corn will spoil any steed. But when we come to match-making, the risk and danger of contracting necrosis are greater, owing to the large number of persons employed and their increased exposure to the phosphorus vapour, particularly as the phosphorus being minutely subdivided, every little fragment is continually emitting fumes.

Abroad, as well as in this country, the subject of necrosis of the jaw in match-makers has been under the consideration of the authorities; notably, in Switzerland and Germany. In the former country, the use of white (ordinary) phosphorus was ordered to be discontinued, as it was definitely shown that it was in this form that the substance was apt to produce necrosis. The Swiss match-factory inspectors stated in their report that "even the newest improvements in the construction and working of the match factories do not suffice to keep down the inroads of phosphorus poisoning, and the only possibility of abolishing phosphorus-necrosis lies in the complete discontinuance of the use of white phosphorus." The yellow phosphorus is objectionable on similar grounds, and the red non-fuming phosphorus is the only form in which safety can be found. In Germany the

* The first part of this article in *HYGIENE* for June 9th dealt with Alkali and Bleaching Powder Works.

authorities and scientific experts have arrived at the same opinion. A great difficulty encountered by the German authorities has been that there are many small factories where matches are secretly made with white phosphorus under the most unfavourable sanitary conditions. It is from these house-factories where the "Hausindustrie," as it is termed, is carried on, that the majority of cases of phosphorus-necrosis which come into the hospitals are derived. Whole families—men, women, and children—work, eat, and sleep in the ill-ventilated little rooms where the matches are made; it becomes merely a question of time when they must succumb to the noxious fumes, aided by the insanitary surroundings. Mr. Smith says that, so far as he knows, the house-industry (match-making) is non-existent in England, but there are a number of small factories using only the white phosphorus in Liverpool, Manchester, Leeds, Bristol, Gloucester, Dublin, Belfast, Glasgow, and Aberdeen, as well as in the metropolis. It is a case of demand and supply. The public insists on having cheap matches; this requirement can be met only by employing the fuming white or yellow phosphorus in making them; and as the demand for ordinary matches igniting anywhere is increasing, so the manufacture will increase, unless the legislature steps in and prohibits the manufacture and sale of any other than what are called "safety" matches. These safety matches derive their distinctive name from the circumstance that they will ignite only when struck on a specially-prepared surface, so that the danger of fire through carelessness or wilfulness is minimised; but they might with still greater force be called "safety," because the only phosphorus used is the red, or non-fuming kind, so that there is immunity from danger for the workers. It may be mentioned here, incidentally, that in the case of safety matches the phosphorus is not at the tip of the match (as in the ordinary sort), but incorporated in the prepared surface, upon which the matches are struck.

Through a misconception in the public mind, or through ignorance of facts, a well-known firm at the East End has come in at times for a large amount of unmerited obloquy and blame. We refer to Bryant and May (Limited), which company possesses, we believe, the most extensive match factory in the world. This company must, as a matter of necessity, if it is to hold its own in commercial circles, manufacture both ordinary and safety matches; but it has this advantage over all small match factories, that, as regards the construction of the buildings, the super-

vision of the workers, and the details of every branch of the manufacture, it can be, and is, maintained at the highest stage of efficiency, ventilation, and cleanliness. We had occasion some time back to publish in the columns of *HYGIENE* a special article on Bryant and May's works, and we are glad to find that Mr. Watson Smith thoroughly endorses, as the outcome of a visit of inspection at a more recent date, all that we then said in commendation of the excellent system followed out at Bryant and May's establishment.

It has often been a subject of complaint, in connection with various manufactures injurious to health, that sanitarians in their zeal for improvement omit to take into sufficient consideration the financial bearings of the case, so that if all the suggested restrictions or changes were carried out the employer would eventually find himself in the Bankruptcy Court, and the workman would have to say, like Othello, that his occupation had gone. Yet, there is this to be observed in favour of persistent pressure for hygienic reform, that it stimulates efforts in the direction of improved machinery or methods. Match-making affords an instance in illustration of this. So long as the old-fashioned style of making matches with fuming phosphorus was the only one known, there was unavoidable liability to phosphorus-necrosis, or "phossy jaw." But the discovery that another kind of phosphorus can be used with perfect immunity to the operatives has virtually done away with the previous constant risk of producing this fearful disease; and it now only remains for the public to give practical effect to their frequently expressed sympathy with the poor match-makers by refusing to purchase or use any other than matches made on the safety principle. The additional cost annually would come to only an insignificant item, either, per household. Further, there would be greatly diminished danger of fires through children or other persons carelessly igniting matches. Surely it would be better for such a sanitary reform to be brought about by individual and collective action than to wait for legislation on the subject. If any man or woman will not voluntarily submit to a loss of a few pence yearly in such a good cause, it says little for his or her humanity.

White lead making was formerly one of the manufactures most injurious to the health of the workpeople; but here a great amelioration has resulted from the introduction of new methods of making whitelead. The old system, the Dutch or "stack" method, necessitated the exposure of the men during the whole time they were in the factory to the myriad particles of white lead dust given off

during the grinding and other processes, the dust finding its way into the lungs and stomachs of the doomed workpeople, who sooner or later were certain to suffer from white lead poisoning. Under the new process, which is styled the wet process, to distinguish it from the other, there is practically no handling of the products, and no exposure to dust and fumes, as the grinding and pulverising stages are not requisite. Consequently if no white lead were used, except such as was made in accordance with the new improved method, white lead poisoning would virtually be stamped out. But in this instance the public could not discriminate or exercise any control over the sort used, as in the case of matches; so that the only way in which the sale (and, by implication, the manufacture) of whitelead made under the old danger-fraught process could be stopped would be by some legislative measure.

Another chemical manufacture dealt with in Mr. Watson Smith's lecture is that of bisulphide of carbon, which is largely used in treating indiarubber as well as in scouring wool and extracting oils from seeds, as well as for some other purposes. The men employed in making the bisulphide do not suffer from the peculiarly poisonous effects of the vapour given off from it as do the operatives at the indiarubber works, where a considerable evaporation of the carbon bisulphide must take place, from the nature of the manufacture. The effects are very peculiar, the chief symptoms being numbness and a paralysed condition of the legs, following on a kind of intoxication. In some cases this intoxication affects the mental powers, and the sufferer, after experiencing different hallucinations, loses his reason.

The principal means of minimising the poisonous effects of carbon bisulphide appear to consist in the men working in well-ventilated rooms, and not for any long, continuous period. In connection with this question, our readers will be glad to learn, on the authority of Mr. Terry, of Messrs. Macintosh and Co.'s works at Manchester, that there is a prospect of carbon bisulphide being soon superseded by a comparatively harmless substitute made by a firm at Hackney Wick. This has been tried by Mr. Terry, who pronounces it superior to the bisulphide on hygienic and other grounds.

Four Children at One Birth.—Mrs. Hannah Davies, the wife of a labourer living near Cardigan, gave birth recently to four children, three girls and a boy; all are doing well. Mrs. Davies, though a young woman, is now the mother of twelve children, and was some time back delivered of twins.

THE POWER OF IMAGINATION EXEMPLIFIED.

AN unfortunate asthmatic, compelled to make a hurried journey from home, arrived very late at night at a country inn, where he had never put up before. Completely worn out, he partook of supper, and was then shown into a huge old-fashioned bedroom, the further portion of which was only dimly illuminated by a miserable candle. He was not long in throwing off his clothes, extinguishing the candle, and slipping into bed. The feeling of being in a strange place and the rapid mental review of many incidents of his day's journey, with the closeness of the heat, combined with the late supper, brought on a wakeful, nervous condition which induced an attack of asthma. Gasping for breath, he scarcely knew what to do; to get up and grope about such a large room, in quest of a door or window by which he could admit more air, seemed beyond his powers. All at once he remembered that somewhere at the far end of the room he had noticed, while undressing, a reflection as from glass. This, he promptly concluded, must have been the window, and, seizing a stick which he had placed on a chair by the bedside, he hurled it through the gloom. His conjectures were confirmed, to his satisfaction, for the clattering on to the floor of pieces of broken glass showed him that he had not only guessed rightly as to the position of the window but had also succeeded in smashing one of the panes. In his imagination the air of the room became cooler and fresher, and the paroxysm of difficult breathing soon ceased, the result being that he fell into a refreshing slumber which lasted till morning. Upon his awaking, he was surprised to find the daylight streaming into the room from a direction exactly opposite to that in which, over-night, he imagined the window to be situated. Turning to glance down the room, he discovered that he had smashed a quantity of glass, surely enough, but it had formed, not part of the window, as he had supposed, but the front of a glazed bookcase.

M. R. C. P.

NEWS AND NOTES.

The Jubilee Institute for Nurses.—A largely attended meeting of the friends of this Institute was held last week, at Grosvenor House, by kind permission of the Duke of Westminster. His Grace occupied the chair, and we observed on the platform or amongst the audience the Duchess of Westminster, Lady Victoria Lambton, Lord Halsbury, Sir E. Sieveking, M.D., Mr. George E. Martin, of Worcester, and other supporters of the Institute. The object of the meeting was to receive the third annual report of the central committee of the Rural District Branch, and to discuss the work of the Society. Nurses are trained, and when duly fitted for their duties are placed in various country districts, so as to bring skilled nursing to even the poorest members of the community. During

the past year thirty-four nurses have been under training; of these twenty-nine have been already sent to new districts. The total number of districts where the Rural Branch have nurses stationed is at the present time fifty-six; the definition of a district for the Society's purposes being a country town, parish, or group of parishes, having a population not exceeding 9,000. Places having more than this number of inhabitants come within the immediate scope of the Jubilee Institute for nurses. The work of the Society during the past year was well described by Mr. Martin, one of the honorary treasurers, and Lady Victoria Lambton, who gave an interesting and graphic account of the benefits conferred upon labourers and other poor people in rural localities by the admirable nursing and excellent hygienic teaching brought within their reach.

* *

Cholera Reports from Jeddah show that the mortality at Mecca from this disease is now as high as seventy deaths daily. In France fatal cases of cholera in an epidemic form have been recently reported at Lyons, Montpellier, Narbonne (where one of the hospital physicians has fallen a victim to cholera), Alais, Frontignan, Cette, Bessèges, and other towns. Notwithstanding the same mistaken tendency on the part of the authorities to conceal the existence of cholera, or to minimise its character by representing it as non-epidemic in some of the localities attacked, there is no doubt that epidemic cholera might at any moment break out in all parts of France, owing to the insanitary condition of many towns and villages. In Russia the authorities are almost silent on the subject, but there is too much reason for believing that the ravages of cholera are very serious in some of the provinces.

* *

The Royal Commission on Metropolitan Water Supply will hold a public sitting on Tuesday next for the purpose of hearing evidence concerning the epidemic prevalence of enteric fever in the Tees Valley in 1890-91, which has been attributed to the public supply of river water for drinking and culinary purposes.

* *

The Long-continued Drought is making its effects alarmingly felt in many parts of England, both urban and rural. Country places usually suffer the worst in such an exceptionally dry season as the present summer; but much of the disease and discomfort thus produced might be obviated by adopting suitable measures for the storage of rain-water during wet seasons.

* *

Illegal Overwork at the West End.—Mrs. Mary Watson and John McRaith, dressmakers, of Mount-street, Grosvenor-square, were summoned on Monday last, at Marlborough-street, for committing a breach of the Factory Act by employing fifteen girls beyond the legal period. The evidence for the prosecution showed that, on May 8th, five girls were kept at work till midnight, and ten others till nearly 11 p.m. The defence set up was that a lady, for

whom the firm was making a dress for one of the Queen's Drawing Rooms, changed her mind at the last moment, and insisted on extensive alterations. It was proved that the firm had been previously convicted for a similar offence. The magistrate imposed fines amounting to £45, with costs.

* *

Our Food Supplies from Australia are increasing yearly. Amongst the most recent novelties may be mentioned some baskets of fish, preserved in ice, and exhibited in the Victorian Court at the Imperial Institute. They were brought from Melbourne by the Oceana steamer, and are said to possess excellent edible qualities, as well as being in good condition.

ANSWERS TO CORRESPONDENTS.

J. B.—Pettenkofer's treatise on Air was translated by Dr. Augustus Hess.

Mr. Mason.—The book you mention will be noticed soon in *HYGIENE*.

A Subscriber.—If you will look at the notices published in *HYGIENE*, you will see—(1) That although *HYGIENE* is now published weekly the annual subscription will not be increased, so that you, with other subscribers, will be entitled to the paper, post free, for the full period for which you subscribed. (2) That the change of publishing day from Saturday to Friday was made in consequence of the former being a most inconvenient day for newsagents and booksellers.

Dr. Selkirk Jones (Horsham).—Thanks for your letter and the information. We are always glad to receive assistance from our friends in our attacks on quackery.

Mons. Bernard (Paris).—See reply to "Subscriber."

A Rural Health Officer.—We are obliged for the report.

Army Surgeon.—Certainly.

M.O.H., Lancashire.—The best definition is that of the late Mr. Michael, Q.C., F.R.C.S., who says in his article on the subject, in the *Manual of Public Health*, "Anything is a nuisance at Common Law which infringes on or curtails the powers, rights, or privileges of anyone. But," he adds, "under the Sanitary Acts the word 'nuisance' has a more restricted meaning, being confined to those matters which are injurious to the public health." It is this condition which often seriously cripples sanitary officials in the discharge of their duties.

A Lady.—We should advise you to give up the nostrums with which you have been drugging your daughter, and to take her to the seaside, East Coast for preference.

Hygienist.—The last International Congress of Hygiene was held in London in 1891; the next will be held at Budapest in 1894.

A Householder.—The London and General Water Purifying Company, Strand, W.C., will be able to supply your requirement.

An American.—Write to Dr. Abbott, Health Department, Boston, Massachusetts.

Author.—Our publishers would print and publish your book at a reasonable cost.

A Sufferer from Hay-Fever.—You can see the writer of the articles if you will send your address, so that an appointment can be made.

HYGIENE,

A SANITARY AND SOCIAL MAGAZINE

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[No. 6.]

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SHALL WE LOCK UP THE DRINK OR THE DRUNKARD?

WHILE all reasoning and reasonable individuals are agreed on the question that temperance should be promoted, on public, sanitary, and social grounds, there is some diversity of opinion as to the best way in which this should be effected.

One party, for instance, the teetotallers, headed by the jocular Northumbrian baronet, Sir Wilfrid Lawson, are in favour of locking up the drink, and the Direct Veto Bill, now before Parliament, may be regarded as the outcome of their continuous agitation. The Bill is the best of its kind ever brought forward for the purpose of checking intemperance; and it is to be hoped that it will pass, either in its present or in a modified form. It aims, as our readers must all by this time be aware, at reducing the number of licensed houses in any given district, at minimising the facilities for getting intoxicants, and at bringing the public-house trade under the control of the community interested, instead of leaving it, as at present, in the hands of the licensing authorities.

Whatever view may be entertained on this matter, which, though a social question, has unfortunately been allowed to drift into a political one, it is, at any rate, impossible to blind one's eyes to the fact that the consumption of alcohol in this country has shown an alarming tendency to augmentation. Yet there are some people who, seeing only what is just on the surface, regard the enormous revenue derived from the taxes on different forms of alcohol as indicative of

national and general prosperity. But it has a far deeper significance. There is manifestly something wrong in our habits, and the *amari aliquid*—the "something bitter"—makes itself perceptible in the overflowing cup. In plain words, the British public drinks too much brandy, whisky, and beer, and a falling off of the revenue in this respect would be a welcome sign of improvement, even though it might somewhat disturb the Chancellor of the Exchequer's calculations of the year's receipts.

For our part, though believing the Direct Veto Bill to be a step in the right direction, we look to something beyond repressive measures for any complete degree of success in bringing about universal temperance. We would elevate the minds of the masses, and endeavour by giving them healthier homes, shortening their hours of labour, and improving their social condition and sanitary surroundings, to remove the incentives and temptation to the inordinate use of alcoholic stimulants.

So much for locking up the drink; but there is another expedient for reducing the amount of misery resulting from excessive intemperance, and that is, locking up the drunkard. There is a class, unfortunately not a small one, of persons who have become so much the slaves of alcohol that they have become confirmed sots, helpless, habitual drunkards. Day by day, week by week, month in and month out, the drink craze gets a stronger hold upon these wretched creatures. Kind treatment, persuasive words, loss of health, money, and position, even the sight of those whom, in their sober senses, they would have held as dearest to them suffering starvation

and misery through their misconduct—all of these ordinarily powerful inducements to lead a different life are thrown away upon them.

For the purpose of dealing with such hopeless cases an Act of Parliament was passed in 1879, entitled "An Act to Facilitate the Control and Cure of Habitual Drunkards," and providing for the temporary detention under restraint of individuals over whom alcohol had obviously acquired such sway as to deprive them of all power of self-control, thus rendering it necessary in the interests of the inebriates themselves, as well as of their relatives and of the community, that they should be put beyond the power of obtaining alcohol. This Act of Parliament, passed through the strenuous exertions of the late Dr. Dalrymple, M.P. for Bath, has been productive rather of disappointment than of any marked amount of public benefit. This was due to certain faults in the provisions of the Act, as we have repeatedly shown in these columns, and particularly some three years back, when a Continuation Act was passed, as the ten years, to which it was originally limited, were close upon a termination. In the first place the Act is of too permissive a character; the word *may*, so frequently employed in it, destroys its force, and renders it absolutely useless in ninety-nine cases out of one hundred.

The mere circumstance of a man or woman having arrived at such a stage of chronic intoxication as to bring him or her under the designation of "habitual drunkard" indicates of itself a degree of mental weakness and irresolution not qualifying the dipsomaniac to be the best judge of his or her actions, or capable of regulating arrangements. A person in such a state, moreover, is not likely to feel desirous of admission into a retreat, except during some exceptional paroxysm of depression or remorse brought on by excessive drinking, and the good resolutions thus accidentally produced will more probably than not rapidly ooze away, like Bob Acres' courage, and leave the victim in an opposite frame of mind long before the required preliminaries, such as going voluntarily before two magistrates to sign a declaration of desire to enter a retreat, can be carried out. These habitual inebriates are as obstinate and cunning as they are peculiar in their ways. Indeed, they sometimes regard themselves as injured persons, like the eccentric gentleman who plaintively alleged that he was "a martyr" to delirium tremens.

What should be done in this matter would be to pass a short Amending Act doing away with the clauses at present necessitating the drunkard's co-operation and sanction, while making restraint under certain conditions compulsory, and giving power to

extend the period of detention (the maximum is now twelve months), if such a step should appear desirable to facilitate the chance of effecting a cure. M. P.

PUBLIC HEALTH REPORTS.

Hanley, Staffordshire.—This urban district, comprising the borough of Hanley, consists of the two populous towns Hanley and Shelton. Hanley covers an area of 590 acres; Shelton, 1,178 acres. The total population at the census of 1891 was 54,846, Shelton being rather more populous than Hanley. The estimated population up to the middle of 1892, with which period the yearly report before us deals, was 55,724. The number of inhabited houses in the district is stated at 10,865, of which only 128 were reported empty; making the average number of inmates per house about 5·2.

The births registered during the twelve months were 1,991, showing a birth-rate of 35·7 per 1,000 population, as against a rate of 39·1 per 1,000 in 1891. The illegitimate births were considerable, namely, 105, equalling more than 5 per cent. of the total births.

The death-rate for the past year was 21·1 per 1,000; in 1891 it was 22·3, and in the previous year it was 21·5 per 1,000. The mean rate that prevailed in the thirty-two large English towns was 20·7, over which it will be seen that the mortality at Hanley was somewhat in excess. The reason for this is obvious when we come to consider the infantile mortality, for the deaths of children under one year to 1,000 births in 1892 were 201, while the average of the thirty-two large towns just referred to was only 164 per 1,000 births. Dr. John Clare, the medical officer of health has called attention in a previous report to the excessive infantile mortality in this district. He attributes it to the circumstance that a large number of mothers go to work, necessarily leaving their infants in the charge of other persons to be hand-fed. Dr. Clare mentions that, at the annual meeting of the British Medical Association in 1892, Dr. Reid, the medical officer of health to the county of Stafford, read a paper on Infantile Mortality, and the employment of women in factories. Dr. Reid divided the towns of Staffordshire into three classes—the first including only those in which many women were engaged in factory work, the second those in which fewer were so occupied, and the third class those in which, practically, no women were engaged in factories. For the ten years from 1881 to 1891 the proportion of deaths of children under one year of age to births

was as follows :—Class 1, 195 deaths to 1,000 births ; Class 2, 166 deaths ; and Class 3, only 152 deaths to each 1,000 of births. The significance of these figures will be seen when a large number of births are taken into calculation ; for out of, say, 100,000 births in towns included in Class 1, 4,300 more would die before completing the first year of existence than would be the case with children born in more favourable conditions, as in Class 3. Dr. Reid suggests as some remedy for this serious evil that mothers should be required by law to absent themselves from factory work for three months after their confinement, so as to give the infants a better start, at any rate, and thus enable them the better to contend against illness.

The zymotic death-rate in Hanley was 3·0 per 1,000 in 1892, as compared with 3·3 in the previous year. Of the deaths coming under this head, 81 (out of 172 deaths from zymotic diseases) were from whooping-cough, 35 from diarrhoea and dysentery, 20 from measles—"only" measles, as people will say when speaking of this really serious disorder—16 from typhoid fever, 12 from membranous croup, and the few others, less than 10 in all, from diphtheria, continued fever, scarlet fever, erysipelas, and puerperal fever. It is a curious thing as regards scarlet fever that, although 85 cases of this disease were notified, only one proved fatal. May not this be accounted for in some degree by the fact that the disease was recognised as requiring prompt attention, and that 44 (rather more than half of the total number) were removed to the Infectious Diseases Hospital at Bucknall, while the remainder were carefully isolated at their own homes ? Fortunately, too, the scarlet fever was of a comparatively mild type. The notification of measles is voluntary.

The deaths from typhoid fever were 16 out of 69 cases. In connection with 37 of these, sanitary defects were discovered on the premises where they occurred, and were remedied. All followed the usual seasonal order, viz., least prevalent in late spring and early summer, and most prevalent in the autumn. A careful investigation as to the character of the milk supply was made in every case, but Dr. Clare was unable in any instance to trace the occurrence of typhoid to that not infrequent source.

We note amongst precautionary measures, such as notices to schools attended by children attacked by infectious diseases, that Dr. Clare gave notice to the Free Library to discontinue supplying books to the infected households, and to send any books previously supplied to the Sanitary Office for disinfection.

It is satisfactory to learn that the water supply to Hanley from Wall Grange has been recently examined by Professor E. Frankland, who pronounced the samples submitted for examination to be, organically, amongst the purest waters ever examined by him. At the same time he pointed out that they were in a very turbid condition, and that it was most desirable that the water should be filtered before being supplied for dietetic use. This report was communicated last November to the Waterworks Company, and they were requested to take measures to remedy the turbidity complained of ; but the water was in the same state up to a recent date. The Sanitary Authority should insist on the recommendation being carried out. When water companies obtain a monopoly, it behoves them to have due regard to the duties which devolve upon them.

As regards sewerage arrangements, the objectionable cesspool privies and Rochdale pans are being gradually replaced by water-closets ; but much remains to be done in this direction, seeing that while more than one-third of the houses in Hanley have some form of water-closet connected with the main sewers, upwards of 6,000 are still provided only with cesspools, or on the Rochdale plan. Dr. Clare urges the Sanitary Authority to complete immediately the outfall sewer at Northwood ; otherwise the introduction of the water-closet system will be productive of sanitary evils instead of benefit.

Upon the coming into force of the Factory and Workshop Act, at the commencement of last year, the Sanitary Authority engaged an additional inspector, to make the inspections requisite for enforcing the provisions of the Act. Mr. Steward, who was appointed, has in the past twelve months inspected nearly 400 workshops, and the numerous notices given to the employers to cleanse, to abate overcrowding, to provide suitable closet accommodation, and to remedy various nuisances—all of which notices have been complied with—afford good evidence of the value of the Act when properly applied. The same inspector has also visited, under the Shop Hours Act, 367 shops, at 100 of which young persons are employed. It was necessary to issue cautions to nine shopkeepers, who forthwith made arrangements for complying with the provisions of the Act. There are in Hanley 78 bakehouses, all of which have been visited by the medical officer of health and the sanitary inspectors ; it was found desirable to issue notices to remedy existing defects at 40 of these establishments, and all have now a clean bill. We note with special satisfac-

tion that an attempt to pass plans for two cellar bake-houses, at a meeting of the Works Committee, was frustrated by the efforts of Dr. Clare, aided by protests from the inspector of factories and from the Amalgamated Union of Operative Bakers. Under the Housing of the Working Classes Act, 1890, numerous notices have been served, with the result that the houses complained of have been closed or have been rendered fit for habitation by repairs or structural alterations.

The number of samples taken under the Sale of Food and Drugs Act have been 117 during 1892; in 8 of these—viz., 5 of milk, 2 of condensed milk, and 1 of butter—adulterations were detected; four of the offenders were prosecuted and convicted, and one prosecution is still pending. In connection with the butter adulteration, Dr. Clare gives the following particulars:—"It being a matter of common report that margarine was purchased from shops in the town in somewhat large quantities by farmers, the question naturally arose—What did they do with it? In March a quantity of butter was bought in the town, and on its being analysed it was found to contain at least 50 per cent. of margarine (*a modest half*). Proceedings were taken before the stipendiary magistrate, and a fine of £10, with costs, was imposed. Although the so-called butter was purchased from a shopkeeper in the borough, both the fine and costs were paid by the farmer who supplied him with it." Innocent shopkeeper! guileless agriculturist! What a pity it is that you did not live in some Continental country, where your misdeeds would have made you acquainted with the interior of a prison, instead of your having merely to disgorge probably only a relatively small proportion of your ill-gotten gains.

Kensington.—The monthly report issued by Dr. T. Orme Dudfield shows a very favourable health condition last month in this populous parish of the West End of London (number of inhabitants at the last census, 166,321). Out of the 41 parishes or districts into which the metropolis is divided, there are only six with a larger population, namely, Islington, with 319,433 inhabitants; Lambeth, 275,202; Camberwell, 235,312; St. Pancras, 234,437; Hackney, 229,531; and Poplar (just heading Kensington), 166,697. The deaths in Kensington in May were equivalent to an annual death-rate of 13·9 per 1,000, being 2·6 per 1,000 below the decennial average (16·5). Of the total number of deaths, 45 were those of children under five years of age, including 30 under one year, while 59 were those of persons aged sixty years and upwards. Deaths

from zymotic diseases, 20 (also below the corrected decennial average), viz., scarlet fever, 6; diarrhoea, 5; diphtheria, 4; whooping cough, 3; smallpox and typhoid fever, 1 each.

Referring to the hospital accommodation for smallpox, which is now threatening London after seven years of practical immunity, Dr. Dudfield states that, with other medical officers of health, he has had a recent opportunity of inspecting the arrangements made by the Asylums Board for the accommodation of smallpox outside the metropolis. This consists of the hospital ships at Long Reach, capable of receiving 350 cases, and the Gore Farm Estate, Darenth, where provision has been made for 600 convalescent cases in permanent buildings. In addition there are 200 other beds in temporary huts erected for infirmary purposes, making a total of 1,150 beds, a number which should suffice for the needs of London. Further, there is plenty of land belonging to the Asylums Board at Darenth on which more huts can be erected should the necessity arise.

Brick-burning is a nuisance with which the Kensington Sanitary Authority has had to deal lately, and with a view to putting a check on it they desired to schedule it in their bye-laws as an "offensive business." The Local Government Board declined to sanction this bye-law; but they gave it as their opinion that the Sanitary Authority (Vestry) would be able to deal with it and cognate trades under the 21st section of the Public Health (London) Act, 1891. It is as follows:—

"Where any premises used for any trade, business, process, or manufacture causing effluvia is certified to the sanitary authority by their medical officer of health, or by any two legally qualified medical practitioners, or by any ten inhabitants of the district of such authority, to be a nuisance, or injurious or dangerous to the health of any of the inhabitants of the district, such authority shall make a complaint, and if it appears to the Petty Sessional Court hearing the complaint that the trade complained of is a nuisance, or causes any effluvia which is a nuisance, then, unless it be shown that such person has used the best practicable means for abating the nuisance, or preventing or counteracting the effluvia, the person so offending shall be liable to a fine not exceeding fifty pounds."

As Dr. Dudfield points out, this section applies to any manufacture in which effluvia are given off, though the trade may not be an offensive one within Section 19 of the same Act. It has been held, moreover, he remarks, that if effluvia amount to a nuisance, in the sense of causing annoyance and discomfort, it is sufficient to bring the trade within the section

without proving also that there is injury to health. Another point worth noticing is that it is imperative upon the Sanitary Authority to proceed upon any one of the various certificates enumerated.

*PATENT MEDICINES.**

By the EDITOR.

NO. VI.—HOLLOWAY'S PILLS AND OINTMENT;
SEQUAH'S "PRAIRIE FLOWER."

SOME fifty or more years ago a man named Albinolo, one of the greatest of modern French quacks (proud pre-eminence!), issued large numbers of curious little green-covered pamphlets in which he most energetically attacked one Thomas Holloway, of London, and accused him of fraudulently appropriating his (Albinolo's) invention. According to this amusing specimen of quarrels among quacks, Albinolo, fired with a notion of creating a fresh field for plunder in England, entrusted Thomas Holloway with the requisite means for bringing out Albinolo's preparations in this country. This Thomas Holloway seems to have done promptly and thoroughly, but he considerably exceeded instructions, for he conceived the original idea of working them in his own name, and thus aroused the little Frenchman's ire to such an extent that the green cover of Albinolo's pamphlet must almost have been matched by the altered hue of his complexion. "Pity such troubles e'er should come, Twixt Tweedledee and Tweedledum;" but it is no part of our province to sympathise with Albinolo, or to side with the (according to Albinolo's asseverations) unfaithful Thomas.

Yet although Thomas was unfaithful, he did not partake of the unbelieving character of his scriptural namesake. Thomas Holloway had not achieved absolute success as a tradesman, and he doubtless felt that the time had come for a change of vocation; so that, Albinolo's attacks notwithstanding, he straightway laid in a large stock of drugs, boxes, and gallipots,

and ordered a large number of newspaper advertisements. He believed in the gullibility of the British public, whatever private views he might have entertained as to the universally curative character of his wares; and, moreover, he dubbed himself "Professor" Holloway, jumping at once from his previous modest position behind the counter of his shop in the Strand, near old Temple Bar, to high scientific rank. His example was contagious, and professors sprang up in all branches of business; so that, in our student time at "Bart's," it was quite possible in the course of a few hours to have one's hair cut by a professor, one's measurement for clothes taken by another professor, one's food prepared under the superintendence of a third professor, and one's knowledge of the "noble art of self-defence" improved by so many punches on the nose, administered for a reasonable fee, by a hulking, beetle-browed professor of pugilism. In fact, professors became almost as common in England then as men bearing military titles are in the United States at the present day.

We have no means of ascertaining whether Thomas Holloway added to his assumed accomplishment of Curer-General an acquaintance with the writings of the English poets; though, consciously or unconsciously, he moulded his course in accordance with the following lines from Samuel Butler's *Hudibras*:—

"To quack of universal cures;
And mighty heaps of coin increase."

We commend this quotation to the present "professorial" staff at Holloway's New Oxford-street establishment as more apt and more truthful in import than the quotations which the compiler of their *Family Friend*, presented to customers, has reproduced from Shakespeare and other authors, with more ingeniousness than ingenuousness, for the purpose of puffing Holloway's Pills and Ointment.

As the *Family Friend* gives a number of anecdotes amidst other miscellaneous matter, we naturally searched its pages for some bearing upon the life of the late "professor," but we were doomed to disappointment. Under the heading of "Seasonable Advice," the pills and ointment are pertinaciously recommended for all ages, all climates, all diseases, all seasons, and in all quantities. We recollect, when on a visit in Wiltshire, noticing a roadside inn at Marlborough bearing the quaint name of the "Five Alls." The device on the sign-board swinging in front of the house is divided into five compartments, representing: 1, The Queen, with the motto. "I govern all"; 2, 3, and 4, an archbishop, a general, and

* Some of the articles constituting this series have already appeared in *HYGIENE* when published as a monthly magazine, and were reprinted in two volumes. But as one of these—Vol. I.—is out of print, we propose, at the request of many readers, to commence a new series, as much of the matter will doubtless be fresh to the great majority of the readers of *HYGIENE* in its altered form. New reports and analyses will appear from time to time. No. I. (May 13th) included:—Patent Medicines; Patent Medicine Law; Mattei's Electro-Homœopathic Remedies. No. II. (May 27th), Clarke's Blood Mixture. No. III. (May 27th), Clarke's Blood Mixture; Chlorodyne and other Opiates. No. IV. (June 9th), Revalenta Arabica. No. V.—(June, 16th), The History of Patent Medicines; The Sequah "Prairie Flower" and Oil.

a judge, respectively praying for all, fighting for all, and administering the law for all; while the fifth figure is that of a man, typical of the British tax-payer, who says significantly, "I pay for all." A somewhat similar condition of things exists as regards quack medicines, for the credulous consumers of these nostrums pay for all, whether it be the huge establishments in which the business is carried on, the many thousands of pounds spent in advertising, or the "mighty heaps of coin" which the proprietors amass.

Well, although we were disappointed in not finding any anecdotes of the late "professor" in the publication to which we have referred, we need not on that account leave our readers wholly in a like predicament, but will give two stories which have come to our knowledge.

When Charles Dickens was in the height of his splendid career as a novelist, Holloway sent him a cheque for £1,000, with an intimation that he might consider it as his property if he would insert in an early number of one of his works, then coming out in a serial form, some reference to the Holloway patent medicines. Dickens, to his honour be it said, with equal promptitude and indignation returned the proffered bribe. Upon hearing of this incident, Thackeray remarked, with the quiet sarcasm of which he was master, that if he had been in Dickens' place he should have killed the villain of the novel with an overdose of Holloway's Pills, and thus have secured the £1,000.

On another occasion, in the year of the Great Exhibition, 1851, there was a large meeting of representative men at Gore House, Kensington. Holloway had gained admission with the throng, and made use of Mr. George Augustus Sala, whom he happened to know, to obtain introductions to prominent personages. He was particularly desirous of being brought under the notice of Thackeray, and Mr. Sala, probably for reasons not difficult to seek, was equally anxious to avoid this. However, yielding at last, Mr. Sala took the "Professor" up to the great novelist, and managed to say a few words of introduction, despite the crowd around them. Thackeray appeared to understand the name imperfectly, and complimented the "Professor" in the same strain as he would have done in the case of a distinguished military officer. Holloway, confused, had to explain that he was not a general, but merely "Professor" Holloway. "Oh! well," observed Thackeray, "I made a very natural mistake, for you, too, must have killed thousands of people."

As to the composition of Holloway's pills, Mons. Dorvault, an eminent French chemist, reported it to be as follows in 144 pills; for convenience we give the amounts in English instead of French weights:—

Aloes ...	...	...	...	62 grains.
Rhubarb ...	...	...	...	27 "
Saffron ...	...	...	...	3 "
Glauber's Salt ...	...	...	...	3 "
Pepper ...	...	...	...	7 "

Aloes, which the Sequah people falsely describe under the name of Prairie Flower (see HYGIENE for June 16th, Patent Medicines, No. 5), is, like rhubarb, a substance possessing aperient properties; saffron and Glauber's salt are in such infinitesimally small quantity that they may be passed over without comment, and the pepper may be similarly dismissed as unworthy of consideration.

Holloway's ointment contains, according to Mons. Dorvault, in 159 parts:—

Olive Oil ...	...	...	...	62½ parts.
Lard ...	...	...	...	50 "
Resin ...	...	...	...	25 "
White Wax ...	...	...	...	12½ "
Yellow Wax ...	...	...	...	3 "
Turpentine ...	...	...	...	3 "
Spermaceti ...	...	...	...	3 "

There is no ingredient here, any more than in the pills, to which special remedial properties can be attributed; yet Holloway's advertisements claim for both preparations marvellous curative characters, and assert in the most unblushing and untruthful manner that cholera, typhoid fever, diphtheria, asthma-pleurisy, influenza, dysentery, gout, rheumatism, all skin affections—in short, every ill to which human flesh is subject—will vanish away upon the administration of the pills and the inunction of the ointment, like morning mists before the rising sun. "Allah is great!" *Holloway* is greater; that is, if we believe what Holloway says. Instead of the few grains of pepper in the pills, we should, bearing in mind the old proverb, require many grains of salt before accepting the Professor's professions of perfection.

While on the question of analysis, we may mention that a correspondent informs us that lately a Sequah lecturer in a country town had the brazen impudence to tell his gaping audience that Sequah, Limited, defied the most skilful analyst to find out the composition of the Prairie Flower Mixture, and offered to give £1,000 to anyone who could state what it contained. Mr. A. W. Stokes, F.C.S., Public Analyst for Paddington and other important metropolitan

districts, published a complete analysis in *HYGIENE* (June 16th), but up to the date of our going to press with the current issue we have not learned that Sequah, Limited, have forwarded a cheque for £1,000 to that gentleman. Possibly they are considering the desirability of repeating the offer, in which case it is to be hoped they will also deposit the money with some person in whom more reliance can be placed than in the wild and wholly untrue assertions of the company's lecturers.

THE VENTILATION OF SHIPS.

THERE is no class that has greater claims to hygienic attention than seamen. For the most part they are unable to think, and powerless to act for themselves. Few occupations are subject to more numerous or important insanitary agencies, including faulty diet, vicissitudes of climate, broken rest, vitiated air, and many others. To make seamen healthy, these must be altogether, or at least in some measure, remedied. Much has been done to effect this, especially of late, showing that many are anxious to assist when accurate data point where and to what extent reform is necessary.

Foul air is undoubtedly one of the most noxious of these agencies. Landsmen can scarcely realise how impure the air becomes on board ship from overcrowding and defective ventilation. And although the smell of a ship's atmosphere is often sickening, even seafaring men, from long habit, frequently fail to recognise the fact till disease indicates the result of neglecting an important sanitary requirement.

Analysis has shown that ship air is more vitiated than would be tolerated on shore, and worse than that in soldiers' and landsmen's dwellings generally. Thus, while barrack air gives from $1\frac{1}{2}$ to 3 volumes of carbonic acid per 1,000 volumes of air, the lower deck of a man-of-war shows from 4 to 14! In some ships the quantity may be more, in others less; but in all the amount is large, and very much greater than it should be. Organised matter and other noxious impurities are proportionately increased. In those merchant ships in which the men are dirtier in their habits, and more crowded, with very deficient ventilation, the air is doubtless still worse.

Inside, then, there is a foul atmosphere; yet, outside there is the purest of all air. How best to get the one out and the other in is the art of ship-ventilation, a problem not yet satisfactorily solved, mainly because ships always vary in size, form, internal construction, extent of immersion, and other points, so that there is an

ever-present difficulty in finding a system adapted to all conditions. However, so great and unhealthy is the impurity, and so constantly is it being added to, that it is obviously prudent to use every method calculated to assist us in attaining our object; and in turn, or conjointly, to employ propulsion, suction, and diffusion, even when we place our chief reliance on some special fixed system.

Densely inhabited ships, and those more or less filled with cargo, obviously require a different degree of ventilation, though perhaps a not very dissimilar apparatus to effect it. Impurities are derived from the ship, her cargo or stores, her inmates, and their employment. The great object is to purify the deeper parts first, because the air in them is most impure and stagnant, nearest to the men, and most difficult to purify, while their purification leads to the surest mode of ventilating the upper parts. This is fully effected by Edmonds' system, the best yet invented, so far as it goes. Our chief mistakes in ship-ventilation appear to be:—

1st. We trust too much to the so-called "self-acting" power of certain systems—Edmonds' included. Even the best require constant supervision.

2ndly. We use our means too sparingly, and are generally content with one, which purifies the centre of the ship, but not the more distant bow and stern.

3rdly. The inlets are usually not sufficiently scattered or sufficiently numerous to give a complete renewal of pure air.

4thly. We do not avail ourselves enough of other important aids to the main system, *e.g.*, open ports, windsails, turning the ship broadside to the wind, &c.

The necessity for efficient ventilation increases as ships become more deeply immersed and closed in, at least in crowded ones like men-of-war. As in most matters, the simplest and least complicated apparatus is invariably the best for ventilating purposes. There is no reason why ship air should not be as pure as, if not purer than, the atmosphere of barracks or houses. And if we succeed in remedying defective ship ventilation and other unhealthy agencies, seamen will become healthier and longer-lived than landsmen or soldiers.

M.D., R.N.

Northampton.—The Town Council have obtained a provisional order for acquiring further land for the extension of the Corporation sewage farm at Ecton, such extension being necessary in consequence of the rapid increase of the population. The Corporation prefer the plan of irrigation and intermittent filtration to any mode of chemical treatment, and consequently some opposition has been offered to their scheme.

REVIEWS AND NOTICES OF BOOKS.

HYGIENIC MEASURES IN RELATION TO INFECTIOUS DISEASES. By George H. F. Nuttall, M.D., Ph.D. Pp. 112. G. P. Putnam's Sons, New York and London. 1893.

Dr. Nuttall modestly describes his book as "an attempt to place in condensed and consultable form definite and trustworthy information" concerning the cause and spread of infectious diseases; including, of course, measures for the prevention of the spread of the disease, such as isolation and disinfection. Dr. Nuttall has succeeded in bringing within moderate compass a large amount of definite and trustworthy information, and the book is one which will be found useful to the sanitary scientist, the practising physician, and the student.

In the introductory chapter he points out that though a rationally conducted system of disinfection, combined in certain cases with isolation, is one of the most powerful means we have of combating infectious disease, yet, to be rational, disinfection must be based on a knowledge of the manner in which the disease is spread, and the nature of the specific infectious agent. When disinfectants are concerned, the great majority of people act upon the loosest principles imaginable, and go to work wholly at haphazard. The disinfectant with the strongest smell must to their minds be the most powerful in its action, and their total of ideas on the matter may be summed up in the answer given by a youth undergoing an examination who, being asked how disinfectants acted, replied, "They smell so nasty that people are compelled to open the windows, and then fresh air gets into the room." It is, therefore, not out of place to mention that by the term disinfection is meant the absolute destruction of infectious material, and to utter the warning that disinfectants must not be confused with antiseptics and deodorants. Speaking generally, a disinfectant kills the disease agent or organism, an antiseptic checks the process of putrefaction or fermentation, and a deodorant destroys bad odours.

The agents used in disinfection are fire, applicable chiefly in the case of infected articles of little value, sputa, dressings, &c., dry heat, steam, or boiling water (moist heat), and various chemicals. The directions given by Dr. Nuttall for efficient disinfection, under differing conditions and in different places, are excellent and reliable.

In a subsequent part of the book the author gives, in a condensed form, information as to the cause and

mode of spreading of certain infectious diseases, and the preventive measures that should be resorted to— isolation, disinfection, &c. These diseases are conveniently arranged in alphabetical order. We give elsewhere one of them, Anthrax, as showing Dr. Nuttall's method of description. A copious index is placed at the end of the book.

ON HAY-FEVER, HAY-ASTHMA, OR
SUMMER-CATARRH.

BY THE EDITOR.

(Continued from page 67, June 16th.)

The exciting causes of hay-fever include the following:—

The flowering of grasses, rye, and wheat. By some the fresh plant is not so often considered to be the cause of the disorder as the hay into which the ripe grass is made. Hence the name of Hay-Fever or Hay-Asthma. In those, however, who are affected through the influence of hay or grass, the disorder generally manifests itself at the beginning of June, when the grass begins to come into bloom; or earlier still if the weather be warm and the growth of the grass more rapid than ordinary. The species of grass which are considered to be most productive of hay-fever are the *Anthoxanthum odoratum* (sweet-scented vernal grass), the *Holcus odoratus* (sweet-scented soft grass), and the *Lolium perenne* (rye grass). The *Anthoxanthum odoratum* commences to blossom at the end of May or in the earlier part of June, according to the state of the weather; and it continues to flower, although less frequently, in the succeeding months of July and August. In connection with this point it is interesting to remark that the peculiar aroma of the grass, at the period of flowering, is principally due to the two first-named species of the Gramineæ.

M. Vogel ascertained, many years since, that benzoic acid exists in both of these grasses, and that their odour is chiefly owing to its presence. This fact is important when considered in connection with the circumstance, obligingly communicated to me by Messrs. Davy, Mac-Murdo and Co, manufacturing chemists, and since corroborated by other practical authorities, that the inhalation of the vapour which accidentally escapes during the process of sublimation of benzoic acid causes considerable irritation of the throat and violent paroxysms of sneezing and coughing. The question here suggests itself whether hay-fever may not, in some degree, especially when it arises in persons who are affected by the aroma of grass or hay, be attributed to the irritating

effects of the benzoic acid which is liberated from the *Anthoxanthum odoratum* and the *Holcus odoratus* by the agency of the summer heat? In support of this suggestion it may be observed that the attacks of hay-fever are almost invariably worse during the continuance of hot dry weather, while they generally assume a milder character in wet weather, or when the temperature is much reduced; at which periods the sublimation of the benzoic acid contained in the flowers would be less than in hot weather.

This exacerbation of the affection in very warm weather also points to local vascular congestion of the nasopulmonary mucous membrane as one of the exciting causes of hay-fever.

Other odours, besides that of grass and hay, have been known to bring on the affection in persons who are predisposed to it.

In America its attacks are so frequently observed at the time when the rose trees are in bloom, about the month of June and July, that the names of rose-catarrh and rose-cold are commonly used in speaking of the disorder. It has also been noticed in this country, arising from apparently the same cause.

In India it is said that symptoms similar to those of hay-fever occur sometimes among Europeans in the months of February and March, at which season the mango tree (*Mangifera*), and the Neem (*Melia azadirachta*) are in blossom.

Beans when in bloom, nettles, lilacs, elder-trees, and other flowering plants and shrubs, have been known occasionally to produce an analogous affection in persons who are predisposed to it; so does the smell of various kinds of sea-weed when exposed to the sun, and undergoing decomposition.

As bearing upon the fact that the smell of decomposing vegetable matter is sometimes a cause of this affection, I may mention the case of a gentleman who favoured me last year with a letter containing a detailed account of his symptoms, and who stated that the annual attack came on once immediately after he had been engaged in changing the water in a vase in which some flowers had been standing for several days.

The communication kindly sent to me by this gentleman abounds in so many points of interest that I regret that his request that I should not publish his name prevents my giving his letter *in extenso*. I may, however, make use of some portions of it:—

"I cannot accurately discover when I was first taken ill with this affection, but I recollect that about ten years back, I was in the habit of remarking that 'I seldom took cold in winter, only in summer time.' At this

period I considered it to be a cold, and treated it accordingly. . . . Some time after this, someone suggested that my complaint was hay-fever, which I had never before heard of; and I then became aware of my disease. I have consulted various medical men, but all have looked upon hay-fever as a sort of hallucination on my part. The most curious thing with my symptoms is, that the mowing of grass near me immediately brings them on. For three years when I was a master at — College, I was surrounded by meadows, and, moreover, my schoolroom was on the ground floor opening on the quadrangle. Here, almost daily during summer, the gardener was engaged in mowing the grass. Even when I was unaware of his presence, and felt completely well, the fit would all at once come on, and I found that he had begun mowing. The effect has been so bad on me that I have had to go to bed, my jaws aching, my eyes smarting, and every sign of a painful influenza being present.

. . . . One year while there, I suffered at nights from severe asthma, often jumping up in bed, half choked. . . . This year, in the middle of April, the periodical attack arose from a strange cause. I was occupied in adding fresh water to some flowers in a vase; the water had been standing for several days, and was foul, and as I poured it away my annual visitor came on. . . . I have known some curious symptoms in others. A relative by marriage, a young farmer residing near the coast, would frequently be attacked in the hay-field; he would then completely lose his sight, and had to be led by his men to the seashore, where he would sit down for half an hour, when he would recover and be able to go on again. . . . A medical gentleman, Dr. T——, of C——, used to suffer from hay-fever, and was confined for weeks to his bed, and unable to attend to his patients."

The presence of cut flowers in a room where a person predisposed to hay-fever is sitting is sometimes sufficient to provoke an attack of the affection. Some of the sufferers are compelled, on this account, to refrain from attending dinner parties in summer, when it is customary to ornament the table with flowers. A similar effect is produced in others by sitting in a room which communicates by open doors or windows with a conservatory containing flowers or shrubs.

In some parts of England, and on the Continent, a peculiar affection exists, similar in many of its symptoms to hay-fever, but apparently connected with the presence of larch trees. After passing through or near to a wood in which there are many larch trees the patient's face becomes swollen, red, and painful; his eyes are blood-shot, and a thin muco-purulent fluid is discharged from

the eyes and nose. These phenomena are attributed by some to a minute fungus growing upon the bark, and by others to the larvæ of the *Phalena bombyx*, which are often found in great numbers upon larch trees, and, when handled, give rise to swelling of the hands and face and considerable irritation of the eyes and nose.

The treatment of larch-fever may be conducted on the same principles as that of hay-fever, attention being also directed to the local swelling and tenderness.

The odour, or perhaps, more correctly speaking, the mechanical irritation to the mucous membrane of the nose and throat, arising from powdered ipecacuanha and some other substances, minutely subdivided, so that the particles are very small and penetrating, will also induce the disorder in persons who are susceptible to its attacks. Sir Thomas Watson mentions in his "Lectures on the Practice of Medicine" the case of a man engaged in the laboratory of St. Bartholomew's Hospital who was always seized with such violent catarrhal symptoms whenever ipecacuanha was being ground to powder as to compel him to leave the room in which the process was conducted. A similar case has come to my knowledge, viz., that of the wife of a medical practitioner; this lady always suffered from catarrh, sneezing, and other symptoms of the same class whenever ipecacuanha was being pulverised in a mortar in the surgery, although the room was situated in a distant part of the house.

As has already been stated, the first heats of summer often play an important part in bringing on the affection.

Dr. Phœbus considers, indeed, that it is chiefly due to this cause. The agency of increased (especially suddenly increased) temperature in producing the affection may be accounted for in various ways. The heat having a tendency to lower the tone of the sympathetic and general nervous system, the patient is weakened and rendered more susceptible to the effects of other exciting causes; the various secretory and excretory functions become disturbed and irregular from the same reason; while the heat also sets free the odoriferous particles from the grass, flowers, &c., and increases the quantity of dust and other irritant matters floating in the atmosphere. There are few things which will more readily excite an attack of the affection than the heat and dust of railway travelling in summer time. Dr. Phœbus also attributes some weight to the influence of strong light in the production of this disorder, as the attacks of summer catarrh are always prevalent during the longest days in the year, when the solar rays are most powerful, and ozone is developed in the greatest quantity. In support of this theory he quotes one case, that of a

professor of chemistry suffering from hay-fever, who complained of a continual unpleasant taste, which he compared to that of ozone.

Each of the principal causes just enumerated has, doubtless, much to do with the production of summer-catarrh; and, as in all other affections, sometimes one, sometimes another cause may preponderate.

The majority of sufferers from this disorder attribute their illness to the presence of ripe grass or hay in their immediate neighbourhood.

A case has been recorded (*vide* Sir T. Watson's "Lectures") of a lady in whom an attack of hay-fever was brought on by the approach of her children, who had been in a hay-field; and at another time, a paroxysm was induced, some weeks after the hay harvest had been finished, upon the children joining her at tea, after playing in a barn in which that season's hay had been placed.

In further illustration of this remarkable susceptibility in some persons, I may mention that I once had under treatment a patient, residing in a large town in the north of England, who informed me that his attacks always assumed a worse form on Saturday during the hay-making season, that being the day on which the market was held, when a large number of farmers came in from the agricultural districts and visited the bank in which he was engaged.

The lady whose case is reported by Sir Thomas Watson was in the habit of removing to Harwich or some other part of the coast during the hay season in order to avoid what was in her case the chief exciting cause of the malady. On one occasion, while walking on the shore at Harwich, she was suddenly attacked by all the symptoms of hay-fever, much to her surprise, as she was not aware of the existence of any grass in the neighbourhood; but on the following day she discovered that hay-making was going on near the top of the cliff at the time when she was passing under it.

Another attack was produced in the same patient under still more singular circumstances. She was at Cromer, and had quite recovered from her annual illness, the hay-making in that neighbourhood having been completed, when she was suddenly seized with catarrhal and other symptoms, and on going into her bedroom she ascertained that a large stack of hay, which had been brought from a field some miles distant, was being put up in a yard near her residence.

(To be continued.)

FOREIGN VERSUS ENGLISH COCOA.

SOME very significant facts came out at the trial in Paris recently of the managers, in that city, of the largest Dutch cocoa concern. An action was brought against them for selling cocoa that had been adulterated by the addition of "potash and other matters, the said cocoa further containing mixtures injurious to health."

The case came before the Eighth Correctional Tribunal in Paris, and the proceedings have been reported at much length in the *Temps* newspaper and commented upon fearlessly by M. Emile Delage in the *Siècle*. It was asserted by the prosecution, and frankly admitted by the defence, that the widely advertised Dutch cocoa in question—a cocoa advertised on the labels as absolutely pure, as the presiding judge significantly pointed out in the recent French trial—contained 3 per cent. of added potash salts, asserted to be highly injurious to health. The eminent chemist M. Riche drew marked attention not only to the startling excess of potash salts in the well-known Dutch preparation, but to these potash salts, consisting largely of sulphate of potash, a deleterious compound, and most injurious to persons with any tendency to kidney disease and to young children.

M. Flandrin, the president of the court, concisely stated the charge as follows, that "as the result of analysis it is proved that the incriminated cocoa contains potash in such quantity as to render it dangerous, and if a child took several cups of it in one day serious consequences might result."

Professor Brouardel, the famous *doyen* of the Faculty of Medicine, and one of the recognised leaders of the profession, not only in France, but on the wider stage of the world, confirmed the evidence of M. Riche, whose eminence as Professor of the School of Pharmacy and Chemist to the French Mint is above all question.

M. Brouardel's words were significant:—"The addition of salts of potash to articles of food is always harmful. The quantity in which they are found in this cocoa causes it to be a danger to health. Salts of potash are the more dangerous according as the

persons partaking of them may be young and have weak kidneys." He then explained that the sulphate of potash in alcoholic beverages is much less dangerous.

Now as the finest cocoa in the world is prepared without any addition of potash salts, it is surely incumbent on the medical profession to recommend no preparation of cocoa the use of which may be attended with considerable peril; and as some English makers, notably Cadbury Brothers, are famous for their absolutely pure and delicious brands, it may be contended that there is no possible excuse for using foreign preparations the purity of which has been openly disputed in a French court. It is perfectly true that a conviction was not obtained, but as M. Emile Delage has ably pointed out in the brilliant *Siècle* article, this good fortune was not due to any doubt as to the extent of the adulteration, but in consequence of some unfortunate conflict of opinion among the medical experts. And the court, as is usual under such circumstances, gave the benefit of the doubt to the defendants, who, as M. Delage adds, were probably much surprised at their acquittal.

CORRESPONDENCE.

DR. BARTLETT ON CLARKE'S BLOOD MIXTURE.

WITH reference to our articles on Clarke's Blood Mixture (HYGIENE, May 20th and 27th), we have received the following letter from an old and esteemed contributor, Dr. Bartlett, whose name is so well known through his professional position as an analyst and the good work which he did in connection with the passing of the Adulteration of Food and Drugs Act, and his subsequent exposure of adulterations.

In common with Dr. Bartlett, and doubtless many of our readers, we look with a large degree of expectancy and interest for the reply to the question put by him to the proprietors of Clarke's Blood Mixture.

To the Editor of HYGIENE.

DEAR SIR,—After some years' absence from the busy centre of current sanitary and scientific literature in

London, I am gratified to find a fresh impulse infused into your useful periodical by its weekly publication.

I am particularly interested in the raid made upon patent medicines and other proprietary articles, and it rouses the blood of an old Commissioner of Public Health to find these flagrant abuses still pursuing the profitable tenor of their ways, undisturbed by exposure and almost unchallenged, except in your columns. I am not sure that I am in accord with all the extreme views expressed on this subject. I am not even certain that I would, if I could, wipe out of existence every patent medicine, and certainly I should wish to use the greatest discrimination in "sifting out the wheat from the chaff" in dealing with what are termed "proprietary articles."

I would draw the line at those patent medicines which are, from the nature of their composition, likely to be injurious to health; those which must be detrimental from the dosage proposed and recommended by the proprietors; those which pretend to cure certain diseases, and which are demonstrably unsuitable or inert for the purposes for which they are sold; and, lastly, all those concerning which any false pretence is advertised or published, or whose proprietors are unable to authenticate every statement advertised or published by them. Touching on your recent articles, I have had almost thrust upon me a most extraordinary advertisement in to-day's *Daily Chronicle*. It apparently emanates, in the first place, from the *Family Doctor*. There are no marks of quotation to the first fifteen repetitions of the *Family Doctor's* advice (in capitals); then comes a quotation, as I take it, from some very peculiar publication, bearing, ironically I suppose, the title of the *Family Doctor*. I say ironically, because no respectable family doctor would dream of giving such advice as: "Clarke's Blood Mixture is a curative agent which cannot be too highly estimated, since it cleanses and clears the blood from all impurities, and restores it to its normal condition. It is a medicine of the greatest possible value. It is certainly the finest blood purifier that science and skill have brought to light up to the present time, and we" (the *Family Doctor*) "can with the utmost confidence recommend it to our subscribers and the public generally."

This is strong and unctuous enough, and no doubt catches the unsophisticated sufferers from "pimples, eruptions, and sores, scrofula, scurvy, and bad legs, skin and blood diseases of all descriptions," as if with "bird-lime." But having swallowed the *Family Doctor* with extreme nausea, I come to "a staggerer,"

as Mr. Dick Swiveller observed. It appears to be a quotation from a certificate signed by my old friend Dr. Alfred Swaine Taylor, stating that "Clarke's Blood Mixture is entirely free from any poison or metallic impregnation, does not contain any injurious ingredient, and is a good, safe, and useful medicine."

I now simply ask the proprietors of Clarke's Blood Mixture to authenticate that quotation, with the rest of the text, if any, under Dr. Swaine Taylor's actual signature, giving also the date.

I have very particular reasons for pressing this inquiry, and if the authenticity of the quotation is not sufficiently proved, I will lay these reasons, with other information, before your readers in a future communication. It will be interesting to show how such quotations are obtained and used.—I am faithfully yours,

H. C. BARTLETT.

London, June 14th, 1893.

ANTHRAX, OR MALIGNANT PUSTULE.*

CAUSE: *Bacillus Anthracis*.

THIS disease, which is epidemic amongst cattle and sheep, is most frequently communicated to men engaged in scraping horns, skinning carcasses, or wool-sorting (wool-sorters' disease), the hands, less frequently the face and neck, in short the exposed parts of the body, usually being the seat of inoculation through abrasions and cuts. The bacilli are present in the blood and œdematous fluid of man and animals when the disease is general. When the disease is local—"malignant pustule"—as is usually the case in man, the bacilli are present in the secretion from the pustules. The fœces and urine of sheep and cattle may contaminate the surface soil and vegetation of pastures. Insects feeding on excreta or carcasses of anthracic animals will spread the disease by bites inflicted on other animals, or possibly man. All bandages which have been in contact with the pustules are dangerous. The disease may also occur through eating the smoked flesh of anthracic animals, where, owing to the bacilli having taken on the spore form, they may retain their virulence indefinitely. This form of the disease (internal anthrax) may also

* By Dr. Nuttall. See Review of "Hygienic Measures in relation to Infectious Diseases" in present number of HYGIENE.

be brought about, as it has been experimentally, by the inhalation of spores. The fresh secretions, blood, etc., only contain the bacilli in the vegetative stage, when they are readily killed by carbolic acid or by boiling water, though they withstand drying for several days. The bacilli in spilled blood, etc., form very resistant spores, which remain virulent for years in a dry state. They resist five per cent. carbolic acid as long as thirty-seven days, and corrosive sublimate, one part to 1,000 of water, for twenty-four hours. Moist heat (steam) at 100° Centigrade (212 °Fahrenheit) applied for four minutes kills the spores.

PREVENTIVE MEASURES.—Infectious skins should be destroyed and anthracic animals buried in deep pits, their bodies being covered with chloride of lime. Protective inoculations (Pasteur) have been applied with a view of limiting the disease in animals. Bandages, infected clothing, or dressings soiled by the discharge of malignant pustules should be very carefully handled and disinfected.

DISINFECTION.—Soiled dressings, bandages, etc., should be burnt; other articles, when practicable, should be boiled or sterilised by steam for at least fifteen minutes.

THE HYGIENIC IMPORTANCE OF CLEANLINESS.—PUBLIC BATHS.

IF there be any part of the body which Hygiene takes more specially than any other under her care, it is the skin. Further, it affords an indication of the state of health of the individual, and of the degree of civilisation of the community. Cleanliness, according to the proverb, is, at any rate, next to godliness, and a very practical authority has put on record his opinion that the civilisation of a State may be measured by the quantity of soap which it consumes. In the olden times it was too much the custom to associate sanctity with indifference to ablution, and, as a consequence, St. Stylites and other holy men of dirty and carefully self-neglected habits were regarded as living in the odour of sanctity. In the present day their odoriferous condition would seriously impair their title to respect.

It is a singular fact, that while the Jews, in accordance with the Mosaic sanitary code, alleged to have been derived direct from God, pay much attention to personal cleanliness—a matter in which the Mohammedans vie with them—the Christians, notwithstanding the importance which they attach to the rite of baptism with water (theoretically washing, or cleansing), not unfrequently neglect to wash their “vile bodies”

to an extent that is positively disgusting. We once heard a story bearing strongly upon this point. A large firm of iron-founders in one of the midland counties were in the habit of treating their employés every summer with a trip by railway to a seaside resort on the eastern coast, where the men availed themselves of the unwonted pleasure of “a dip in the briny,” for this purpose using the bathing machines. On one occasion two men were bathing from the same machine, when one remarked to the other, “Jim, you’re rather dirty, ain’t you?” “Well,” replied Jim, in an explanatory and apologetic tone, “I got too late to the station last year, and so I missed the excursion train.” Yet, in the town where he worked, Jim might, on any day in the twenty-four months which elapsed between his two sea-baths, have obtained a good hot or cold bath for a few pence. We said just now, on any day; we should have said on any week-day. But why should the working classes be debarred of the privilege of using the public baths during certain periods on Sunday? They may get beer for internal use at fixed hours; why may they not get water for external use up to a definite time? Admitting that cleanliness is next to godliness, we might at least give cleanliness a chance. Active agitation has long been carried on for the opening on Sundays of public museums and libraries; to these we would add public baths. Many operatives are almost, if not wholly, prevented by their long hours of work and the arduous nature of their labour from visiting such institutions on week-days. Are they, on that account, to be prohibited from carrying out the scriptural injunction, “Wash and be clean”?

Although public baths are with us a matter of recent introduction, the Romans established them upon a scale wholly unknown to the moderns. At one period no less than 900 of these establishments existed in Rome, many of them being magnificent in their proportions as well as in their fittings. Gibbon, in his “History of the Roman Empire,” describes the baths of Caracalla (early in the third century of the Christian era) as occupying a space on the Avertine Mount one mile in circumference, and open to all citizens at stated hours. They contained above 1,600 seats of marble; in the baths of Diocletian there were still more, namely, 3,000. “The walls of the lofty apartments were covered with curious mosaics that imitated the art of the pencil in the elegance of design and the variety of colours. The Egyptian granite was beautifully encrusted with the precious green marble of Numidia; the perpetual stream of hot water was poured into the

capacious basins through so many wide mouths of bright and massy silver; and the meanest Roman could purchase with a small copper coin (an *as*, about half a farthing) the daily enjoyment of a scene of pomp and luxury which might excite the envy of the kings of Asia."

Truly, a brilliant and graphic description! But, for practical purposes, the frequenters of our public baths could do without so much pomp and luxury; they could dispense with marble seats, curious mosaics, and bright and massive silver conduit pipes; but they do often demand, and with much reason too, a perpetual stream of water, instead of the niggardly, intermittent supply which causes the contents of the swimming bath to appear as green, though not so precious, as Numidian marble. Luxury and elegance are relative terms, and dispensable matters; but managers of public baths should bear in mind that clean, fresh water is a positive necessity.

NEWS AND NOTES.

Oysters are worth eating, says the English epicure, only when the letter R is in the name of the month. Such, however, is not the universally recognised state of things, for French oysters are regarded as in their finest and best state from May to August, at which period the English oysters are held in low repute.

The Committee on Inebriates have just issued the evidence given before them in a Blue Book, to which we shall have occasion to refer later on. The appendix contains a memorial from eighty-one leading members of the medical profession, urging the desirability of introducing a system of compulsory restraint in the case of habitual drunkards. This subject has been dealt with in our columns before, and is discussed in the article by "M. P.," published in our present number.

The Best Bill of Fare in the World.—A famous chef, M. Joseph Dugnot, formerly of the Maison Paillard, Chaussée d'Antin, was interviewed when in New York by an enterprising pressman. With all the deliberation imaginable, he wrote out a *menu* on a piece of paper, which he folded, endorsed with the words "The Best Bill of Fare in the World," and handed to his persecutor, who hastened away to anxiously scrutinise the prize that he imagined he had secured. Here it is:—

BREAKFAST—Anything you like, and not too much of it; change every day. DINNER—ditto. SUPPER—ditto.

The Notification of Infectious Disease.—The number of notifications sent by the metropolitan medical officers to the managers of the Asylums Board in 1892 amounted to 46,074, as against 26,522 and 29,795 in the two previous years. The cost of such notifications was £4,667.

ANSWERS TO CORRESPONDENTS.

W. T.—Read "Air and Light; a Doctor's Story" in verse, which appeared in *HYGIENE* for May 13th. It is both amusing and instructive.

Caveat Emptor.—Few articles are more adulterated than vinegar, sulphuric acid being a common adulterant.

Sewage.—If your local sanitary authority will not attend to your complaint, write to the Local Government Board, Whitehall, London, S.W.

A Lady (Hastings).—Any persons letting rooms in which there has recently been a scarlet fever case, without having the rooms thoroughly disinfected previous to the new letting, is liable to a penalty of £20.

W. Phillips.—Thanks for the information.

A Subscriber (Dublin).—Send full particulars, and we will advise you by letter, instead of waiting till our next issue.

S. M.—Water as well as any other analyses can be procured from our analysts on reasonable terms.

W.—Let us hear from you after the meeting.

A Probationer.—*Nursing Notes* is an excellent practical journal for nurses. It is published at 12, Buckingham-street, Strand, W.C., only 2d. monthly.

Dr. Murray Gibbes (Mooroopua, Australia).—Your MS. received. Will appear in an early number.

Author.—Our publishers would bring out your book cheaply and expeditiously.

Invalid.—The reports about Worthing are obviously intended to mislead.

EDITORIAL AND PUBLISHING NOTICES.

EDITORIAL.—The Editor begs to express his thanks to numerous correspondents, and to state that he will be pleased to receive any articles or correspondence coming within the scope of *HYGIENE*, reports of medical officers of health, items of general or local sanitary interest, newspapers (marked at the part to which it is desired to draw attention), &c.

PUBLISHING.—The terms of subscription not having been raised, although under the new arrangement fifty-two numbers instead of twelve will be sent out annually, all subscriptions now running will continue good for the original period.

HYGIENE will be forwarded, post free, to all parts of the Kingdom, and to all countries within the Postal Union (including the United States, Canada, France, Germany, Belgium, Italy, Austria, Hungary, Spain, Portugal, Switzerland, the Netherlands, Russia, Denmark, Sweden, and Norway), on the following prepaid terms:—Twelve months, 6s. 6d.; six months, 3s. 6d. Subscription terms for Australia, India, the Cape, and all other parts of the world can be ascertained by inquiry at *HYGIENE* office.

ADVERTISERS are requested to bear in mind the greatly increased circulation of *HYGIENE*, with its weekly issue and reduced price. In addition to the large, regular circulation, many thousands of copies are distributed annually to sanitary officials, medical men, private addresses, public libraries, clubs, hotels, &c.

HYGIENE,

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*LONDON GOVERNMENT: AS IT IS AND AS IT SHOULD BE.**

By HARRY WILKINS, Barrister-at-Law, Vestry Clerk of St. James's, Westminster.

THE subject to which I invite your attention this evening is one of no small importance, relating as it does to the well-being of the most populous and most wealthy metropolis the world has ever seen. It is, too, a subject which has not yet attracted the attention it deserves. It periodically appears in the Queen's Speech at the opening of Parliament, and most frequently disappears like a comet. No Government has attempted to comprehensively grapple with the question since the passing of the Metropolis Local Management Act in 1855, which resulted in a considerable improvement in local administration, accompanied by some economy in expenditure. Two reasons may exist for this inaction. Firstly, the machine is working fairly well; and, secondly, the local government of London bristles with so many details, and is so far from what is sometimes called "high policy," that no statesman seems disposed to devote enough attention and energy to produce a satisfactory scheme of reform. But witless ones rush in where angels fear to tread, and perhaps one who does not even aspire to be a politician may be permitted to suggest one or two matters for thought for any who may earnestly desire to see the local government of London put on a more intelligible footing than at present, without regard to the ultimate effects upon the fortunes of any political party.

We are so accustomed to the vastness of London, that it is difficult to realise either its extent or wealth. Let us first of all, then, inquire what is London.

Taking the term as meaning the County of London, which, by the Local Government Act, 1888, was carved out of the counties of Kent, Surrey, and Middlesex, we have a territory covering an area of 120 square miles. According to the census of 1891, it contains 557,134 inhabited houses, and a population of 4,231,431. Compared with the census of 1881, when the population was 3,834,194, the inhabitants had increased in number by 397,237 in the ten years, or, in round numbers, at the rate of 40,000 a year. That is to say, that for ten years in succession a city exceeding in population that of Cambridge, and nearly equal to that of Oxford, was added to London annually. The increase in the ten years is equal to the population of Hull and Newcastle together, and is nearly as much as half the population of London itself at the beginning of the present century. In fact, only two cities in England exceed in population the growth of London in ten years. The increase represents the addition to London in ten years of a community exceeding in number the population either of a city like Sheffield or Leeds.

Rather more than 120,000 children are born in London every year, and nearly 90,000 persons die during the same period. The remainder of the difference between these two totals arises from migration from the provinces or immigration from abroad.

The rent-roll of London may be taken at something like £30,000,000, for the gross annual value of property

* A lecture delivered in St. James's Hall, London.

inserted in the valuation list for the current year is £40,578,335, from which must be deducted the value of gas and water mains and similar undertakings assessed upon profits. What proportion this rent-roll bears to the income of the population it is impossible to say, but taking it at one-sixth, which is probably a low estimate, we have a population of 4,231,431, with an income of £180,000,000 per annum. Although this figure may appear large in the aggregate, it is no doubt under the mark, for, assuming each household to consist of four persons only, we should have 1,057,857 households or families, with an average income of about £170 per annum for each household or family. These incomes would vary from nothing, represented by the paupers in the workhouses, to the large earnings of some of our merchant princes.

Speaking of paupers reminds me that we have in London about 90,000 persons constantly in receipt of relief from the rates, besides a large number who, either by charitable assistance or by maintaining a daily struggle with poverty, manage to avoid falling across the borderline into pauperism.

But what is London? A stranger limiting his knowledge to the neighbourhood of the docks might reply that it is the largest port in the world. The man of business might say, confining his outlook to the City, that it is the centre of the world's finance. Yet others might describe it as a city of amusements, or as a centre of gaiety, or the place where, above all others, literary and scientific research can be carried on most freely. And so again with the people. If the Scotch, the Welsh, the Irish, the Chinese, the Lascars, and various other nationalities, to say nothing of the Hebrews, were herded in separate communities, we should have a goodly-sized town of most of them. As to occupations, we find that different quarters of the town are devoted to different industries. Boilermakers, for instance, congregate at Millwall, tanners, gluemakers, and such like at Bermondsey, and so on, each industry supporting a community sufficient in number to form a separate town.

It is in fact not only the extent of London, but the diversity of conditions in different localities, that renders the question of local government so difficult. If the manufacturing or trading classes, masters and men, lived side by side with the professional and leisured classes, as of old, there would be no problem to solve. But, under existing circumstances, the mischief is that the various classes are to an increasing extent each withdrawing from those above and below them.

Many more particulars might be given illustrating the

extent of London. Its streets, nearly 2,500 miles in length, would sensibly diminish the distance to America if they could be planted in the Atlantic. Its parks and open spaces—which, in spite of considerable expansion within the last twenty-five years or so, are almost swallowed up in bricks and mortar—would occupy the area of no inconsiderable forest, if they were placed together.

From many points of view London is a marvellous place. We are indeed citizens of no mean city; but unfortunately a very small minority take the slightest interest in our own municipal concerns.

I am almost afraid that I have dealt with London and its people at too great a length, but I feel so strongly that the best possible system will break down if it is not properly worked and fairly supported by those who are most interested in it—that is, the people themselves—that I am anxious to stimulate municipal patriotism by appealing to the greatness, wealth, and magnificence of our city—using the word in an extended sense. I only hope that my picture of the vastness and diversity of London will not appal any of its citizens. To any, if such there be, who are tempted to apathy by the vastness of the work to be done, let me say that, after all, London is made up of districts, and that if each district is well governed the whole metropolis will gain.

Let me now turn to the method by which the County of London is governed. The part to which we shall naturally first direct our attention is the City proper, and I propose to briefly refer to the various branches of civic administration.

Beginning at the top, the Lord Mayor first claims notice. In Saxon times the chief magistrate of London was designated Portreeve, corresponding to the similar officer of the county—a Shirereeve or sheriff. It is clear, then, that London has enjoyed municipal government in some form or other for many centuries. In Norman times the Norman-French term of mayor [major] was substituted for that of Portreeve or Provost, which at the Norman Conquest had superseded the Saxon title. The Portreeve and Provost were appointed by the sovereign, but from the year 1213 downwards the citizens of London have chosen their own mayor, subject to the approval of their choice by the monarch.

A citizen must have served the office of sheriff and be an alderman to be eligible for the office of Lord Mayor. He is elected by the Livery, that is the members of the City companies, on Michaelmas day. The practice is for the Livery to select two aldermen for the office, and for the aldermen to select the senior of these two for the approval of the sovereign. This practice is not invariably

followed, and it may be within the recollection of my hearers that the aldermen a few years ago incurred some slight unpopularity by passing over Alderman Hadley and selecting for the office of Lord Mayor an alderman who was not even put in nomination by the Livery.

The Lord Mayor is not only chief magistrate in the City. He is a Privy Councillor, and his authority ceases neither on the demise nor abdication of the monarch, which is more than can be said of any other commission office, or of Parliament itself. At such a time, indeed, he is perhaps the principal officer in the kingdom, and has more than once taken a leading part in proclaiming the right of a new king. He is also chief butler at the king's coronation, and representative of the sovereign in many ways, such as Chief Justice at every gaol delivery of Newgate, First Commissioner in the Lieutenancy, &c. He is, moreover, coroner for the City, Conservator of the Thames and Lea, and holds several other appointments in right of his office.

The hospitality of the Lord Mayor fulfils a very useful purpose. It appeals alike to the foreigner, when in the name of his citizens the Lord Mayor does honour to a distinguished stranger, and to the British-born, when men of science, art, war, or religion receive their meed of recognition for valued services to the country; it usually expresses in concrete form indeed the opinion of the majority of Londoners.

One more useful function of the Lord Mayor deserves to be noticed, and that is the relief of distress by public subscription, whether by a standing fund, such as the annual collection for the metropolitan hospitals and dispensaries, or by special efforts for exceptional cases, like a calamitous fire, a destructive earthquake, or a mining or shipping disaster.

So much, then, for the Lord Mayor. Before passing to the aldermen, let me express the hope that the office of Lord Mayor may long be maintained in all its ancient dignity and usefulness, combining as it does election on a democratic basis with the performance of State functions of the highest importance. In the City the Lord Mayor is, in fact, both the elect of the people and the chief representative of the sovereign. This happy combination of offices in one person is apt to be overlooked by critics who take a superficial view of things.

The sheriffs rank next to the Lord Mayor, but perhaps it may be more convenient to first refer to the Court of Aldermen. There are twenty-six aldermen, each representing a ward, and, with the exception of the Ward of Bridge Without, which has no constituency, elected at a wardmote. The alderman for Bridge Without is appointed by his brethren of the Court. An alderman

is elected by the citizens of his ward for life, but the Court of Aldermen claim and exercise the power to refuse admission to their body of any citizen whom they may not consider fitly qualified. A notable example of this was the refusal to recognise the election of Sir John Bennett as alderman of the Ward of Cheap a few years ago. An alderman is a magistrate within the City, and was formerly responsible for the maintenance of order within his ward. The alderman presides at all wardmotes or meetings, but when there is no alderman the Lord Mayor presides. The alderman appoints one or more to act as his deputy or deputies. This appointment ceases with the death or the resignation of the alderman. A citizen who is elected an alderman and refuses to serve the office is liable to a fine.

The Court of Aldermen have charge of all that relates to the administration of justice in the City, such as the police courts and prisons, although the appointment of the judicial officers is not absolutely in their gift, but partially under their control. They also have the administration of the City lunatic asylums, and in fact correspond with county justices in the days before the establishment of county councils.

The next office coming under notice, that of sheriff, reminds us that the city of London is a county as well as a city. The office of Shirereeve, or governor of a county, is one of great antiquity and authority. There are two sheriffs for London, elected annually on Midsummer day by the Livery. One is usually nominated by the Lord Mayor and elected as a matter of course. The other is now chosen by the Livery. Any citizen is liable to be elected sheriff, and is compelled to serve, if elected, unless he can swear that he is not worth £20,000. Until the passing of the Local Government Act, 1888, the sheriffs of London were also sheriffs for Middlesex.

The duties of sheriff are exceedingly numerous. One of the more unpleasant duties is rendered familiar to us by the term "sheriff's officer." Another is that of seeing criminals executed according to law. The sheriffs are returning officers at Parliamentary elections, and attend or assist the Lord Mayor on certain occasions of State.

The Common Council consists of 206 representatives of the twenty-five wards, in unequal proportions, the number of representatives varying according to the extent of the ward. The whole Common Council is elected at a ward meeting, held on St. Thomas's day annually. The Lord Mayor presides over the meetings of the Common Council, and a specified number of other aldermen must be present to constitute a court.

The Common Council have the management of the

ity estates, City bridges, markets, etc., and the municipal oversight of the City generally. They appoint annually a governor, deputy, and assistants for the management of the City lands in Ireland. They also appoint the Town Clerk, Common Serjeant, Remembrancer, and many other of the City officers, but, rather curiously, the appointment of Chamberlain or Treasurer rests with the Livery.

The body which is responsible for the paving, lighting, drainage, and cleansing of the City is the Commission of Sewers, a body consisting of six aldermen, the Recorder, Common Serjeant, and ninety commoners, representing the various wards. This body is appointed annually, and elects its own chairman for the year. Its functions correspond very much with the duties of a vestry in the more important parishes of London outside the City, and therefore need not be enumerated. For certain purposes, the City has been divided into wards; for others, into parishes. Of the latter there are 112, each of which is presumably equipped with churchwardens, overseers of the poor, and other parochial officers. For poor law purposes the City has been incorporated into a union.

The City police are managed and maintained by and at the cost of the City alone, differing in this respect from every other police force in the kingdom.

(To be continued).

THE USE OF STEAM IN WEAVING FACTORIES.

By Mr. CAMERON, H.M. Inspector of Factories, Ireland.

IN weaving-sheds, I regret to say, the use and, although I am aware it is a matter of argument, the abuse (that is to say, excessive use) of steam continues. I believe that steam is frequently used in excess of any requirement simply through carelessness and lack of observation. Objection is met with the allegation of necessity. This statement constitutes difficulty for an inspector. I am convinced, however, that careful supervision would much lessen the evil.

In connection with the subject, I may call attention to "Neill's Patent Improved System for Moistening Air in Weaving Factories." Mr. Neill has introduced this system in the weaving sheds of the Rosebank Weaving Company. I have seen it working in one shed, and steam in another shed. The contrast was marked. The system consists in moistening the air by condensed vapour arising from a cooling reservoir. The air is collected in an enclosure over the reservoir, and from the reservoir it is introduced into the factory by fans or air

propellers, and distributed at a low temperature through perforated wooden tubes. It is claimed by Mr. Neill that, "compared with steam, the advantages are obvious to those who have had experience of both systems."

A very great saving is effected by utilising a waste product instead of steam, which has to be generated at considerable expense; and practical results show that the atmosphere produced in a weaving factory by the introduction of the vapour is favourable, not only as regards the quality and quantity of the manufacture, but as it also contributes to the health and comfort of the worker.

I wish all success to Mr. Neill's interesting experiment, for I have often felt grave concern at the condition in which I have found weaving factories through the excessive use of steam.

AN AGE OF STIMULANTS.—No. 1.*

By J. MURRAY-GIBBES, M.B., C.M.,
Mooroopna, Victoria, Australia.

THE age we live in is most emphatically an age of unrest, for none of us are satisfied with the condition we find ourselves in, but have an intense craving for something, the majority of us know not what. It is an age of discontentment. Now there are two kinds of discontent—a healthy and an unhealthy discontent; a healthy discontent longs after and works for an improvement, whilst an unhealthy discontent is an inactive grumbling.

What has caused this great change in our national character? For notwithstanding the fact that John Bull was always a grumbler, yet at the present time he has excelled himself in this respect. Not only has he become saturated with this spirit of unrest, but his wife and daughters have taken the complaint to a most alarming degree. John Bull used to be a grand, slow-thinking animal, but now his animalism is inferior to his intellectualism. As there must always be a cause for every effect, it may not be uninteresting to inquire into this great change.

The characteristics of an animal can in a great measure be gauged by studying its food habits, for we find that birds alter their plumage when fed on a diet differing from what they are accustomed to, or are fed on food suitable to the work required of them, as do also dogs.

* This article appeared in *HYGIENE* some time back, when it was a monthly publication. It is necessary to reprint it now as forming the first of a series of papers under this title, for the elucidation of which in the case of thousands of new readers the republication is desirable.—Ed. *HYGIENE*.

John Bull, till the end of the 16th century, lived on a very limited though plain and solid diet; and his method of eating would now be considered coarse, for Royalty, even in the reign of James I., did not use forks, but their knife and fingers, in conveying the food to their mouths. After this date a number of new vegetables were introduced; not that they came into common use, for John Bull is a very conservative animal, as we find that, although potatoes were introduced into England in 1585, they were spoken of in 1718 as of "little note."

With these new foods came improved methods of preparing the food for the table, it being taken in a more concentrated form. John Bull, though he has always liked a good solid food, has always been fond of his nut brown ale—not the ale we get in the colonies, made from glucose, but made from malt, and he even took kindly to the addition of hops to it. Wine he never looked upon as a necessary adjunct to his food, and the only kinds he really took to were port and sherry, for he looked with contempt on the thin acid clarets, &c. Ale and wine contain two constituents—a vegetable acid and alcohol; and so also does cider, another beverage largely drunk in the West of England.

In the 17th century a new class of beverages were introduced into John Bull's food customs, and a class that anyone who had studied his peculiarities would never have expected that he would have taken kindly to, but I think it must have been owing to Mrs. John Bull's good influence over her worthy spouse. The new beverages were tea, coffee, and cocoa, which were first sold in London by Mr. Galloway in his coffee house in the year 1657, and they very quickly became popular. About the same time John took very kindly to a new custom, which, although it could hardly be classed with food or beverages, yet as they are so intimately connected, I am perfectly justified in classifying it with them. In fact he took to tobacco smoking and snuff taking, to the intense disgust of his good wife.

Here we find that most conservative of beings John Bull to all appearances changing his food customs and adopting new ones, and indulging in a habit his wife highly disapproves of.

There are many actions we do for which there are two reasons, viz., a conscious and an unconscious reason, and the latter is the one I wish to bring out in this paper. The conscious reason why John took to these new practices was because he liked them; the

unconscious reason we shall discover when we have analysed his new articles of diet.

There is hardly a nation or race living on the earth who do not indulge in some beverages, otherwise than water, with their food. A large number take beverages containing alcohol, but the remainder take beverages which do not, but they all take some which contain either an animal or vegetable acid; therefore this acid must play a very active part in connection with food customs. Malt liquors, wine, cider, and all other fermented liquors are necessary acid mixtures. Tea, coffee, and cocoa also contain an acid, viz., tannic acid, and in this respect alcoholic and non-alcoholic beverages are similar.

Sir William Roberts tells us that, as the result of his experiments, he finds:—

1. That the vegetable acids in alcoholic and non-alcoholic beverages delay or prolong the digestion of our food.
2. That this delay is required to prevent a too sudden influx of rich nourishment into our blood, as it would upset the tranquil operations of the various organs of the body.

Man eats, as a rule, three meals a day, each meal consisting of concentrated food—food deprived of most of its useless or indigestible parts. Animals eat the useless with the useful, and this prolongs their digestion. A carnivorous animal gorges himself with food, and this concentrated nourishment passing suddenly into his blood, he is in a semi-apoplectic or sleepy state for some hours after such a meal. (Some men do the same.)

The acids in beverages prolong digestion by deadening the ferments, whose duties are to change the various kinds of food from an insoluble into a soluble state; an excessive use of them deadens them to such an extent that they cannot properly perform their work, and hence we suffer from indigestion, or undigested food.

Having seen that these beverages all contain a vegetable acid which acts on the digestive powers, we will enquire into their other properties.

Malt liquors, wine, and beer all contain an active principle which acts on man's nervous system—viz., alcohol.

Tea, coffee, and cocoa all contain an active principle, which acts on the nervous system, viz., thein.

Both alcohol and thein act first as a stimulant and then as a sedative. Alcohol acts principally on the animal nervous system, whilst thein acts principally upon the higher nervous system. Alcohol gives a

man apparent increased power for the moment, but its sedative action soon comes on, whilst thein braces up his nervous system, leaving his intellectual powers free. Both taken in excess continuously produce a high state of excitement of the nervous system commonly known as "the horrors." Alcohol develops the animal powers of man, whilst thein develops the intellectual powers, the great strides civilisation has made during the present century being chiefly due to it.

The increased consumption of meat eaten at the present time accounts for the increased consumption of both these beverages. The intellectual advancement of mankind requires him to take more brain food, consequently we find the meat bill increasing yearly; owing to the increased consumption of meat an increased consumption of food delayers is required. Australasia is a great meat-eating country, and she consumes twice as much tea as the old country. The almost universal prevalence of dyspepsia at the present time is owing to the beverages taken with our meals containing so much vegetable acids. Mrs. John Bull and her daughters are the largest consumers of tea, except their colonial cousins, and we cannot but notice the alteration it is making in their character and physique. They are becoming strong advocates for women's rights, are entering the professions, and in every way striving to take the place of man as breadwinners, forgetting that in this strife for supremacy the end must be, *i.e.*, if they succeed, that they will become like the female bees, the workers or neutrals, and the males will become the drones, for woman's brain power must develop at the expense of her animal powers. This development, if indeed it is a development, amongst women shows itself in their diminished power of suckling their young and in the prevailing decay of the teeth, so that in a hundred years we may expect man to be a toothless animal, for teeth, like other organs, will waste from non-use, and, owing to the preparation of our food at present, they are not so essential as formerly. Tea drinking amongst the young diminishes the power of their food ferments; consequently they will not be so robust, if indeed they are now. Thein is a powerful stimulant, and when taken by the young inculcates a craving for alcohol when they grow up. Fruits, Nature's food delayers, contain vegetable acids without any stimulant, and consequently are suitable for both the young and the adult.

The age we live in is an age of stimulants, for we

all crave for them, either in the alcoholic or non alcoholic form, owing to our present food customs, and this is the reason why the drink bill goes on increasing in magnitude, notwithstanding the great extension of teetotalism.

Tobacco contains the dual properties of these beverages, and is smoked owing to them. After a meal a smoker feels uncomfortable because the digestion of his food is rapidly taking place; but a few whiffs of it slow down the process, and he feels comfortable.

Malt liquors, wine, cider, tea, coffee, cocoa, or chocolate and tobacco all belong to the same class, *viz.*, digestion delayers, and the consumption of them is a food custom. They all have elements of harm in them if taken in excess. They are all good if taken in moderation, as John Bull has proved by the lead he has always taken amongst the nations of the earth.

THE DISTINCTIONS BETWEEN HEALTH AND DISEASE.

(From a quaint old book written by Dr. Maynwaringe, "On the Method and Means of Health," published in 1683.)

You that have health, and know not how to prize it, I'll tell you what it is, that you may love it better: put a higher value upon it, and endeavour to preserve it with a more serious and stricter observance.

Health is that which maketh your meat and drink both savoury and pleasant, else Nature's injunction of eating and drinking would be a hard task and a slavish custom.

Health is that which maketh your bed easy and your sleep refreshing; that reviveth your strength with the rising sun, and maketh you cheerful at the light of another day; 'tis that which filleth up the hollow and uneven parts of your carcase, and maketh your body plump and comely; 'tis that which dresseth you in Nature's richest attire, and adorns your face with her choicest colours.

'Tis that which maketh exercise a sport, and walking abroad the enjoyment of your liberty.

'Tis that which maketh fertile and increaseth the natural endowments of your mind and preserveth them long from decay, maketh your wit acute and your memory retentive.

'Tis that which supporteth the fragility of a corruptible body, and preserveth the verdure, vigour, and beauty of youth.

'Tis that which maketh the soul to take a delight in

her mansion, sporting herself at the casement of your eyes.

'Tis that which maketh pleasure to be pleasure and delights delightful, without which you can solace yourself in nothing of earthly felicities or enjoyments.

But now take a view of yourself when health has turned her back upon you and deserted your company; see how the scene is changed—how you are robbed and spoiled of all your comforts and enjoyments.

Sleep that was stretched out from evening to the bright, fair day is now broken into pieces and subdivided, not worth the accounting; the night that before seemed short is now too long, and the downy bed presseth hard against the bones.

Exercise now is toiling, and walking abroad is the carrying of a burden.

The eye that flashed like lightning is now like the opaque body of a thick cloud that, having rolled from east to west swifter than a celestial orb, is now tired and weary with standing still, and that hath become obtuse and dull.

If this, then, is a true picture of the opposite conditions of health and disease, what stronger inducements can anyone require to give him an interest in the study and observation of Nature's institutions, seeing that they are the only means by which the beloved ends and wished-for enjoyments can be attained, and that we may as likely keep or acquire riches by prodigality as preserve health and long life by intemperance, inordinate passions, a noxious air, and such like injurious customs, ways, and manner of living?

PATENT MEDICINES.*

By the EDITOR.

NO. VII.—CORRESPONDENCE CONCERNING HOLLOWAY AND MATTEI.

I.—CONCERNING HOLLOWAY.

Dublin.

Sir,—I am *out of patience* with such abominable articles as you have inserted in your paper about what you are pleased to call *quack* medicines. Do you not know that the

* Some of the articles constituting this series have already appeared in *HYGIENE* when published as a monthly magazine, and were reprinted in two volumes. But as one of these—Vol. I.—is out of print, we propose, at the request of many readers, to commence a new series, as much of the matter will doubtless be fresh to the great majority of the readers of *HYGIENE* in its altered form. New reports and analyses will appear from time to time. No. I. (May 13th) included:—Patent Medicines; Patent Medicine Law; Mattei's Electro-Homœopathic Remedies. No. II. (May 27th), Clarke's Blood Mixture. No. III. (May 27th), Clarke's Blood Mixture; Chlorodyne and other Opiates. No. IV. (June 9th), Revalenta Arabica. No. V.—(June, 16th), The History of Patent Medicines; The Sequah "Prairie Flower" and Oil. No. VI.—(June 23rd), Holloway's Pills and Ointment.

late esteemed *Professor* Holloway was a gentleman of the highest character, and that he founded several institutions of almost national importance? You may not *know all this* but I do, and I am *proud* to say that I have a near and *dear* relative who has *enjoyed* the benefits of the Holloway College at Egham. And don't you know that one who bears the *honoured* name of Holloway has been knighted by Her Majesty?—Yours *indignantly*,
A LADY.

* * *

II.—CONCERNING MATTEI.

ANOTHER correspondent has sent us two fearfully lengthy epistles from Pisa. Judging from his violent and illogical attacks on the medical profession, his judgment must be as much out of the straight line as the famous Leaning Tower which forms one of the sights of that Italian city. The oddest thing, perhaps, about his letters is that he has adopted the signature "COMMON SENSE." He might as well, while about it, have unconsciously imitated the signature of the "Professor's" champion, and signed himself "A GENTLEMAN." These communications are too long for publication in full, and we must therefore content ourselves with extracts. One lump of mud is so much like another that a sample or two will serve as well as exhibiting the whole heap:—

"Without wishing to appear abusive, I must say such an article as that on Mattei's Remedies is a reflection on your honesty, common sense, and capacity as editor of a paper.

"1. *Honesty.* Is it honesty to denounce as sheer humbug a system of which you *know nothing*? You pin your faith to Mr. Stokes's analysis of the 'Electricities,' but you *don't even try the remedies*, and you condemn them beforehand. What good are your assertions without proofs? Prove that they do no good or do harm, and people will listen to you; otherwise they will think you belong to the great conspiracy to silence any new remedy not brought out by the doctors. Let me add, too, that I know a doctor who analysed the 'Electricities,' and *found* they were prepared from fungi, to which idea the smell and the growths that develop in them might give colour.

"2. *Your common sense.* Do you believe your little *ipse dixit* will stop people trying Mattei? What an idea you must have of the mental capacities of your readers if you imagine you can keep them off the forbidden Mattei territory by calling him a humbug.

"3. *Your commercial capacity as the editor of a paper.** *HYGIENE* looks a useful kind of publication, but the line you have taken up would quite discourage myself and others from taking it in."

"Do you not feel that your article, imputing fraud to

* "Commercial capacity"! We begin to suspect from this expression, and the animus displayed throughout, that "Common Sense" would have been nearer the mark if he had styled himself "A Matteist Bagman." We did not know before that commercial capacity was an editorial essential. At the same time we must allow that Mattei could give most people points in commercial capacity, if by that term is implied the capacity requisite for selling water at the rate of about 4s. an ounce.

Mattei, is abusive? Not only abusive, I should say, but libellous; and abuse naturally generates abuse. I hope my abuse has been restrained by gentlemanly feeling, but it is difficult for *those who know* to write in cold blood to people like yourself, who, *knowing simply nothing*, and not even taking the trouble to test a single remedy, sit down in an editor's chair and pronounce an *ex cathedra* judgment, that it is all a humbug and a fraud! I wonder you cannot see that a paper conducted on such principles can never go down with people who have a grain of common sense or reflection. We should be thankful to you if you would unmask Mattei by *proving* his fraud; but that is the last thing that occurs to you."

"P.S.—I dare say you have never compared your position with that taken up by the Pope. Were the Saviour to come again, and work miracles of healing in your sight, you would pronounce them humbug, if not fraud."

* * *

In accordance with the French rule, "*Place aux dames*," we will deal first with "A Lady's" communication. While admitting that her relative has profited from the posthumous benefits provided by the late Thomas Holloway, we are not prepared to admit that the knighthood conferred on the present head of the firm of pill makers has added to the lustre of that ancient order, that it has elevated quackery into a science, or that it has in any degree altered the fact that Thomas Holloway "made his pile" by the pertinacious and persistent puffery and exaggeration of the remedial value of his wares. The "almost national" importance of the institutions founded with part of the money thus amassed is a question which we will not stop to discuss, beyond remarking that there was one institution which Thomas Holloway established, not the least appropriate, perhaps, if intended as a delicate compliment to the people who believe that his pills and ointment will cure every human malady, viz., an asylum for lunatics.

After all, our feminine correspondent has advanced no sounder argument in the "Professor's" favour than that used by Lucetta in Shakespeare's *Two Gentlemen of Verona*:—"I have no other but a woman's reason; I think him so, because I think him so."

Without "wishing to appear abusive," the Matteist advocate has succeeded beyond his desires or expectations—what would he say, we wonder, if he tried to appear abusive?—and we complacently accept his attack as a pretty good proof that the shafts aimed at Mattei's imposition have hit, at least, one of his followers. It would seem that our correspondent looks upon common sense as a rare quality, limited to himself and other Matteists; while he advances the illogical argument that the circumstance of a man having devoted special study to any particular branch of knowledge wholly disqualifies

him from coming to any right opinion thereon. How cleverly, too, he works in his similes! Scarcely have we got over the contrast of our humble selves with the Pope, though we never claimed infallibility (we leave such preposterous claims to people of "Common Sense's" stamp), than the artfully simple, or simply artful, comparison of Mattei with the Saviour (!) is adroitly introduced.

As for our knowing nothing of Mattei's remedies, this assumption by "Common Sense" is as incorrect as his other insinuations, for it happens that three years ago our attention was directed to these preparations by General Booth's asking our opinion concerning them, in the course of a conversation about Mrs. Booth's illness with cancer. It was evident to us—as Mr. Stead has confirmed in his panegyric on Mattei in the *Review of Reviews*—that the General had no great faith in the "Electricities"; but we availed ourselves of subsequent opportunities to put the Mattei remedies to practical tests. The results were so unsatisfactory that we were not surprised when Mr. Stokes, after submitting the "Electricities" to rigid analysis, announced that the samples sent to him, just as they were purchased from the London agents, consisted only of water. Water, "honest water," as Shakespeare wrote, to what base uses may you not be brought! And, because we say that so long as Mr. Stokes' analysis is not disproved, so long as Mattei and his followers content themselves with vague assertions we shall continue to regard him as a humbug, "Common Sense" avers that we are not only abusive, but libellous. The anecdote is told of a man, who had been found guilty by a jury, that when asked what he had to say on his behalf, he remarked that he was "open to conviction." We shall be open to conviction, too, when Mattei has proved that the analysis we published is false, and has shown what his "Electricities" do contain besides water.

There is another story, told of a gentleman who, passing along a street of a manufacturing town, was so astonished at the spectacle of a little woman vigorously punching a big "navvy" in the back, at the same time using most angry language, without any attempt at resistance or remonstrance on the part of the recipient of the blows, that he could not refrain from speaking to the man. The good-humoured giant turned round towards the gentleman, and, removing his pipe from his mouth, observed, with a broad smile on his face, glancing down at his diminutive and irascible spouse, "It's all right, sir; it pleases her, and it don't hurt me." In like manner it may please "Common Sense" and others of the same stamp to pitch into and vilify the medical pro-

fession, while it certainly does not hurt or disturb the equanimity of the latter.

We have already referred in these articles to the promptitude with which quacks assert that their nostrums will cure every ill under the sun. Universality is their great aim, as embodied in the advice given by an American patent medicine manufacturer to a relative of his who was about to embark in a similar business: "Recommend the stuff internally, externally, and eternally."

Holloway's Pills and Ointment afford a good illustration of the extent to which this advice can be carried. The "boon and blessing to every family," which one sees advertised at every railway station, consists of aloes and rhubarb, with some still less important constituents, to be administered internally; and an ointment composed of lard, oil, wax, turpentine, and resin, to be used externally; whilst the constant and persistent advertising of these nostrums may be regarded as carrying out the third condition laid down by the successful Yankee quack. Anyone acquainted with even the most elementary rudiments of pharmacy and medicine must, of course, see that there is nothing of a specific—far less of a marvellous—character amongst the ingredients we have enumerated; yet Holloway's advertisements assert that these two quack preparations will promptly and certainly cure every disease, from asthma right down through the alphabet.

We wonder whether the Bishops and other bigwigs who manage the affairs of Holloway College, referred to in "A Lady's" letter, ever give five minutes' thought to the questionable means and despicable disregard for truth by which the money was amassed that enabled the founder of that institution to leave behind a perpetual memorial of Holloway's Pills and Ointment and of human gullibility. *Monumentum ære perennius* might in this instance be translated, "A monument more lasting than the brazen assertions of its founder."

Some time ago, when General Booth was raising the special Salvation Army fund, one of his opponents tried to trip him up by asking whether he could conscientiously accept money in aid from unbelievers and other unworthy persons, referring to some whose names had appeared in the list of subscribers. To this the General replied that if the Devil himself should send him a donation he should not hesitate to accept it and apply it to the purpose in view. The somewhat equivocal moral of this is: Blind your eyes as to the source whence the money is derived; and it is apparently fully acted up to by the trustees of the Holloway College.

Hospital Accommodation in the Metropolis for Persons Suffering from Infectious Diseases.—We have received from the Vestry Clerk of Kensington (Mr. W. Chambers Leete) a copy of an important report upon this subject, drawn up for that sanitary authority by Dr. Orme Dudfield, medical officer of health.

From this report it appears that at the end of May the total accommodation in the several Infectious Diseases Hospitals of the Metropolitan Asylums Board comprised 3,252 beds, including the beds in day-rooms, temporary huts, &c. Of these 2,652 were then occupied, including 2,289 by scarlet fever patients, 305 by diphtheria patients, and 53 by typhoid fever cases, leaving only 600 available, "a number likely," says Dr. Dudfield in his report, dated May 29th, "to be filled up at no distant date, having regard to the increasing demands for admission of scarlet fever and diphtheria cases." So rapidly has Dr. Dudfield's prognostication been verified that the small surplus of accommodation existing at the time of his writing had become exhausted before his report had passed through the press. Consequently, for some time to come there will be no accommodation other than that resulting from discharges and deaths, so that the hospital accommodation for the infectious sick must be wholly incommensurate with the requirements of the sanitary authorities. In other words, we are face to face with a breakdown, which has arisen not from any want of energy or vigilance on the part of the managers of the Metropolitan Asylums Board, but from the extreme difficulty experienced by the managers in providing suitable sites for infectious hospitals. No sooner does the Asylums Board select a site than the whole neighbourhood is up in arms against the project. On the northern side of London, the Tottenham site was refused the sanction of the Local Government Board in 1891; in 1892 this decision was reversed under the great pressure of epidemic disease in the metropolis. Now, the Tooting site on the south side of London has been refused sanction. The situation is one of a most serious character.

One reassuring circumstance must not be wholly lost sight of, namely, that the increase in applications for admission to the Asylums Board's hospitals is attributed, not so much to any exceptional prevalence of infectious disease in London as to the operation of compulsory notification (a salutary matter in its way), to the abolition of the power to make a charge where people can afford to pay for admission, and to the increased knowledge and appreciation of the hospitals.

As Dr. Dudfield points out, the need for extra accommodation for scarlet fever cases, in particular, must become greater and more urgent as the year advances, seeing that such cases are at a minimum in the spring, and that the maximum is not attained until the autumn. The expense of providing temporary accommodation, should great pressure arise, would lead to enormous wasteful outlay—probably equal to half of the cost of providing the permanent accommodation necessary.

AERATED MINERAL WATERS AND THEIR MANUFACTURE.

By THOMAS T. P. BRUCE WARREN.

THE increased consumption of aerated waters which has taken place during the last few years may be fairly regarded as having outgrown the ordinary processes of production. Improved appliances and competition have deprived aerated waters of a great deal of their character as luxuries, and consequently they are now met with as articles of daily necessity, claiming a place in our cellars which was previously consecrated to the brewer and his commodities. I believe that even now the consumption of mineral waters is seriously restricted by the expense of the bottles containing them. Good aerated waters could be delivered to the consumer for about sixpence per gallon if some convenient method could be found for delivering them in the same bulk as the brewer delivers his ale. The present method of delivering the more ordinary aerated waters may be taken as costing one shilling per gallon to the wholesale dealer, and when placed on our tables reaches between two and three shillings per gallon, whilst, if taken at the bar of a respectable hotel, it does not cost much less than five shillings per gallon. I do not include in this the modicum of something else which some people think is necessary to make these waters go down.

The complaint which manufacturers of aerated waters make against the publican, who by his charges restricts the use of these beverages, seems to me not to reach the general public with sufficient force; but it should be noted that the publican is not the only sinner whose notions of profit are not quite in harmony with those of the manufacturer of aerated drinks.

I am not aware of any attempt having been made to classify aerated waters on any strictly scientific definition. All naturally occurring water contains a greater or less amount of mineral or saline matter, due to the fact that, generally speaking, there are very few absolutely insoluble salts, and the purer the water is at its source the more

easily does it take up the more common naturally occurring substances met with in its course.

We may define mineral waters, whether artificially prepared or otherwise, as those which differ from ordinary drinking water in possessing either an abnormal quantity of saline ingredients, or which are characterised by the absence or presence of the constituents of ordinary water, and contain sometimes a large quantity of the normally occurring salts, by which they acquire distinct properties from ordinary potable water. When the quantity or nature of the abnormally occurring salts is large, the water is very frequently found to possess strongly-marked medicinal activity.

Aerated waters are those which contain an abnormal quantity of carbonic acid gas, to which they owe their briskness and effervescent quality. It is also by this excess of carbonic acid that the carbonates of the alkaline earths are held in solution. When syrups or similar flavouring ingredients are added to ordinary water and aerated a class of water called sweetened or fancy drinks are obtained. Mineral waters also contain in most cases large quantities of carbonic acid gas.

At the present time a very large quantity of natural mineral waters is consumed as ordinary beverages, which are bottled at the springs and imported to this country. These natural waters appear to be liable almost to the same capriciousness which is so characteristic of our tastes in other directions. The waters which are now imported offer a very striking contrast to those which we were accustomed to meet with a few years ago, and I have no doubt the increased hold which these waters have taken is due to the extra care in bottling and the improved appearance of glass vessels over those made of stoneware.

I have been informed that manufacturers of mineral waters do not take that scientific interest in the production of these waters, artificially, which they did a few years ago, principally from the fact that they have enough to do during the season to attend to their ordinary manufactures. Apart from this consideration, I can see no reason why the artificial production of any mineral water need offer any difficulty. Most people seem to think that all that is necessary to make a natural water, artificially, is to get hold of a tabulated analysis of the spring, and simply to put the ingredients together. Such a proceeding is not only likely to lead to failure in most cases, but a feeling is liable to be created that the difficulty cannot be got over. Others, again, will add together the saline constituents, which will readily dissolve in water, and omit entirely those which are with more difficulty soluble, whilst if any reaction should take place

resulting in the formation of an insoluble compound, it is in many cases removed altogether.

It is necessary to consider very carefully the tabulated statement of an analysis of a mineral water in order to make an artificial water approximating that of the natural one.

We must remember that we can never be certain of the precise form of combination of the several constituents of a mineral water. There are two ways in which it is usual to express the results of an analysis of the saline residue of a water. Some chemists prefer to state the quantity of each metal or base found, and also, in a similar way, the quantity of each acid or acid radical, whilst others express their results by linking together certain acids and certain bases, as though certain definite combinations of acids and bases had been found. This latter method necessarily involves a great amount of guesswork, though probably we may not be far wrong in assuming that those combinations of acids and bases exist in water which present the most stable condition when in the state of solution, and that the affinity between the acids and bases will be satisfied according to our general notions of the strength of affinity between them.

In most cases it would be extremely difficult to adapt this concoction—for it is really hardly anything else—to the preparation of an artificial mineral water; whilst in many cases it would be absolutely impracticable for attaining an accurate composition.

There is a considerable amount of skill required in compounding a mineral water so as to retain a faithful representation of an analysis, however stated, and I am not aware that any manufacturer at the present time makes a speciality of this interesting branch of the business, the result of such neglect being that the importer of natural waters has pretty much an undisturbed interest.

There are a few general facts which are probably well known to some manufacturers of mineral waters, and which are of inestimable importance. It is well known that those substances which are sparingly soluble in water have their solubilities greatly increased if recently precipitated, and used in a moist, *not dried*, condition. In some cases the precipitant has a modifying influence on the solubility, when it may be even possible to remove by washing all traces of the extraneous salt or compound. Again, other cases may arise where a compound has to be formed by the mutual action of two soluble salts, where washing or exposure to the air would be impracticable. In this case, care must be taken to select those salts which, by their mutual decomposition, will give resulting compounds which at any rate, so far as

their constituent acids and bases are concerned, are not foreign to the compounds or constituents of the water itself.

(*To be continued.*)

ON HAY-FEVER, HAY-ASTHMA, OR SUMMER-CATARRH.

BY THE EDITOR.

(*Continued from page 80, June 23rd.*)

It would be easy to introduce numerous other cases of hay-fever dependent upon the emanations from hay in addition to those already detailed, but I will content myself with giving a few only of these.

The first occurred in the practice of the late Mr. James Bird, and as he has described it in a communication to the *British Medical Journal* (July 22nd, 1865), which he wrote in support of my views on hay-fever, I take this opportunity of quoting his account of it. "I attended," he writes, "in the month of June, 1845, 1846, and 1847, an old Cornish baronet, the late Sir W. C——, who upon each of these several occasions suffered severely for a week or fortnight from a sharp attack of hay-fever. He had repeatedly been invalided in a similar way in former years; and as his attacks in each instance were invariably preceded by recent exposure to the aroma of newly-made hay, or to the smell of a bean-field, when the plants were in full bloom, he seemed thoroughly aware of the character of his indisposition, and, without a moment's hesitation, called it "Hay-fever." The threefold annual return of this disorder, under my own immediate observation, and the conviction that every attack was clearly traceable to a distinct individual influence, left no doubt whatever in his mind, or in my own mind, that the slightest exposure in hot, dry weather to the influence of the aroma of newly-made hay, or to that which emanated from bean plants in blossom, was in a few hours followed by a sudden and severe attack of sneezing, copious defluxion from the eyes and nose, fever, and all the other symptoms of influenza cold."

The symptoms of the baronet alluded to were as nearly alike as possible in each of the attacks for which Mr. Bird attended him. He was upon each occasion in good health, and following his usual occupation or amusement up to the period of exposure or indisposition. On one occasion he went down to Pangbourne from London for a day's fishing. In the evening of the same day, having been in some

meadows where haymaking was going on, he became suddenly oppressed and feverish, short-breathed, with sneezing, running at the nose, increased lachrymal secretion, pain over the frontal sinuses, considerable œdema of the eyelids, and swelling of the nose. There was not much cough and but little expectoration, but the sneezing was almost incessant, twenty or thirty times in succession, lasting for an hour or more, with very brief intervals, leaving him, after a copious defluxion, with severe headache and considerable weakness, and otherwise feeling very unwell.

A second attack occurred after a drive through Willesden, and on towards Harrow, on a fine evening, after a very hot day during the haymaking season in the month of June. Having been quite well previously he heedlessly took this drive, and was rewarded by an attack exactly similar to the one of the previous year. The third that came under notice in this gentleman's case followed in the course of a few hours after a visit to Lord's cricket ground, where he remained a couple of hours or so looking on at a match that was then being played. He was attacked in the evening with precisely similar symptoms to those of the preceding year; and he was unfit to attend to his ordinary avocations for as nearly as possible the same time that he was invalided in the previous years. Haymaking was at the time in full operation in the fields on each side of Finchley-road, along which he had driven.

I shall briefly give two other cases, both of which occurred in my own practice, and are of interest, not only as showing that they were induced by the emanations from newly-made hay, but also as demonstrating the certainty with which the affection may be sometimes traced to this common cause.

On the 14th of June, some years back, a Scotch gentleman called upon me and requested me to give him a prescription which he might use for the purpose of warding off or diminishing the intensity of the annual recurrent attack of hay-fever to which he had for many years been subject. He informed me that he resided in the neighbourhood of Edinburgh, and that he always began to suffer from the affection in July (hay-fever, as has previously been stated, making its appearance rather later in Scotland than in England), but that having, during the previous few weeks, travelled through various English counties, he had experienced some of the most marked symptoms on the day before he came to consult me. These symptoms came on suddenly as he was travelling on the London and North-Western line some few miles south of Rugby, and continued to trouble him until he

got to town, where they gradually left him. The suddenness of the attack and the transient character of the symptoms afforded good presumptive evidence of their having arisen from some local cause, which I thought was most probably hay-making near the railway.

Two days afterwards I was consulted by a gentleman who had come from one of the midland counties. In giving an account of his case, he mentioned that in travelling up to town he had suddenly suffered from great difficulty of breathing and a feeling of suffocation, which harassed him during the remainder of his journey to London. On further inquiry I ascertained that the sudden exacerbation of his disorder occurred within a few miles of Coventry, at the same part of the line as that referred to in the previous case.

Towards the end of the week in which these two gentlemen consulted me, I had occasion to make a professional visit to Birmingham by the London and North-Western Railway, and noticed that the embankments, on both sides of the line, for greater part of the distance between Weedon and Rugby, had been recently mown, and that some of the hay still remained uncarried. This afforded at once a clue to the cause of the indisposition of my patients, each of whom complained of a sudden attack of hay-fever when travelling between Rugby and Weedon.

As I did not hear subsequently from the patient resident in Scotland, and could not write to make inquiries through having lost his address, I am unable to state whether good results followed the use of the medicine which I prescribed, to be taken at the commencement of his annual illness, with the view of cutting the disorder short immediately it began to show itself. The probability, however, is in favour of its having fortunately prevented the persistence of the symptoms, as he expressed his intention of consulting me again by letter if the attack should assume a severe and permanent character.

I was able to follow the other case up to a cure, although the symptoms were of a very serious nature. This gentleman informed me that for more than twelve years past he had suffered from an annual attack of hay-fever, coming on about the middle of June, and usually lasting from six to eight weeks, during which time he was almost totally unfitted for business.

In the hope of obtaining relief he had placed himself under various medical men, but without any alleviation of the disorder or diminution of the length of the yearly attack.

His symptoms were similar to those of asthma, viz., great pain in the chest, difficulty of breathing, a feeling of tightness about the nose and side of the head, constriction of the throat, and constant troublesome cough without free expectoration. The symptoms were always worse at night, when the patient would start up from his sleep, gasping and struggling for breath and fearing immediate suffocation; towards morning they began to abate, the expectoration became more free, profuse perspiration broke out all over the body, and the patient fell asleep, exhausted by his sufferings. At first the affection seemed to yield only slightly to treatment, but within two weeks from the period at which he had placed himself under my care he found himself nearly well, as shown by the following letter which I received from him on the 7th of July:—

"I am glad to say that I have derived benefit from the medicine which you last prescribed for me, and, although I am not entirely free from the wheezing and cough, I feel that I shall be so in a day or two. I have not much to complain of now, except a feeling of debility and some loss of appetite. With a tonic I expect soon to be right again." From this date (July 7th) the patient made a rapid recovery, and in a short time was able to do without medicine. I have described this case rather fully, as it furnishes a proof of the fallacy of the opinion advanced by many that hay-fever is not amenable to treatment. This case was one of the worst that I have known, besides which the patient had suffered from hay-fever for two months annually during many consecutive years, yet it yielded to treatment in the course of a fortnight.

(To be continued.)

NEWS AND NOTES.

Cholera.—The Local Government Board have issued a circular to sanitary authorities in the metropolis calling attention to their circular letter of August 25th last, in which, in view of the severe outbreak of cholera which was then occurring in Hamburg, they reminded sanitary authorities of the responsibilities and duties devolving upon them in connection with the organisation of measures of precaution against the possible introduction of the disease into London. It is accompanied by a copy of a memorandum by the Board's medical officer showing that there is reason for sanitary authorities preparing in advance to prevent the extension of any cholera that may be imported into their districts during the ensuing season.

* *

The Housing of the Poor.—At the June meeting of the Church of England Sanitary Association, held at the

Church House, Sir F. G. Milner, Bart., M.P., in the chair, the Rev. Arthur Robins, of Windsor, read a paper on "The Housing of the Poor," in the course of which he said that cleanliness and godliness, soap and salvation, in the homes of a terribly large proportion of our poor had not for generations had even a bowing acquaintance, and that where dirt and demoralisation act and re-act upon the body, only very simple people would look to find a pure soul or a sound mind. Sanitary legislation, being only permissive, was derided and defied. Public opinion must be so instructed and inspired as to demand compulsory powers, all medical officers of health and sanitary inspectors being made the officials of the central Local and Government Board instead of the Local Authorities, charged to see that the law is peremptorily obeyed. The "better housing of the poor" was a front plank in the Newcastle programme. The plank had turned out to be a trap-door up and down which things do spring, both in programmes and in pantomimes. The Ecclesiastical Commissioners had themselves been summoned as the owners of insanitary dwellings, fined, and condemned in costs. Whilst the great masses of the poor of England existed somewhere out of sight, where physical deterioration and spiritual defilement abide, and abound in active decomposition together, the Church had been criminally apathetic for ages. The Archbishop of Canterbury had declared, what it was impossible to doubt, that "the better housing of the poor is a great moral and religious question that the Church ought to face." This was the Primate's admirable text, upon which the sermon had unhappily yet to be preached. There were now 50,000 families in London, each living in one slum room or cellar, and 70,000 persons existing upon crime, almost all dwellers in the rookeries of the great metropolis of the world. The reverend gentleman concluded by calling upon the Church, all along the line, to agitate to help to redeem bodies and save souls, where nothing of the beauty of holiness, none of the sanctities of chastity, none of the purities of life, were now possible in the insanitary and demoralising dwellings of our home-made heathen. At the close of the paper plans of simple sanitary dwellings which could be built to yield a remunerative return upon the outlay were exhibited and explained.

* *

The Sanitary Condition of the World's Water Show at Earl's Court has occupied the attention of the Kensington Vestry. Their surveyor has endeavoured in vain to get plans of the drainage, &c., from the World's Show officials, and the Works Committee of the Vestry have consequently given notice of their intention to open up the drains of the exhibition, so that a thorough examination of them may be made, and any defects dealt with compulsorily under the Metropolis Management Act.

* *

Selling Bad Meat.—Conviction for Manslaughter.—At Oxford Assizes last Saturday, before Baron Pollock, George Kempson, a butcher and dealer, was indicted for the manslaughter of the wife of a publican, at Chipping Norton,

by selling unsound meat, through eating which the deceased was poisoned. The jury found the prisoner guilty after twenty minutes' consultation, and the judge in passing sentence said that the crime of which the prisoner had been convicted was of a most serious character. He was sentenced to eight months' imprisonment with hard labour.

* *

Zymotic Diseases in London.—At the last meeting of the Metropolitan Asylums Board, Sir Edwin Galsworthy in the chair, it was reported that fever patients in the Board's hospitals had increased during the past fortnight from 2,793 to 2,929. The number of smallpox patients in the same institutions had fallen from 533 to 479. In consequence of the great pressure upon the accommodation at the disposal of the Board, many cases of scarlet fever and diphtheria had to be refused admission, although the majority of them were such as could not be properly accommodated at their own homes.

* *

Manchester Sewage.—It has been proposed to convey this to Chat Moss, and an official inquiry is now going on as to the feasibility of the scheme. Dr. Voelcker, the eminent agricultural chemist, considers that the soil of the great Lancashire bog, which gave so much trouble to the engineers when constructing the railway across it, and contains an area of 140 square miles, is well adapted for this purpose, as the surface is, in his opinion, capable of taking an immense quantity of manure and refuse; and he believes that in course of time the whole of Chat Moss would be converted into agricultural soil. Various towns, such as Eccles, situated in the district, are already raising objections to the proposal.

* *

Does Beer Drinking Give Strength?—A student was sent for by the head of his college, who said, "Sir, I understand that you have a barrel of beer in your rooms, which is contrary to all regulations." The young man replied, "Yes, sir, that is true; but the fact is, the doctor told me that if I drank this beer I should get stronger." "Well, and are you stronger?" warmly demanded the don. "Yes, sir, indeed I am," was the reply, "for when the barrel came in I could hardly move it, and now I can roll it round the room."

ANSWERS TO CORRESPONDENTS.

Lady Victoria Lambton.—MS. received; article will appear in early number.

Sir Spencer Wells, Bart.—The paper on Cholera, &c., shall have early insertion.

Mr. Roberts.—No society of the name you give exists in London.

A Student.—Mr. Jabez Hogg's work on the Use of the Microscope would be very useful.

Impure Water.—The clergyman writing on this subject from North Wales should send samples for analysis to the analytical laboratory connected with HYGIENE.

Mater.—We should not recommend the article you mention. Consult a medical practitioner in your own neighbourhood.

A Well-wisher will be pleased to learn that his anticipations concerning the increase of the circulation and popularity of HYGIENE, consequent on weekly issue and reduction of price, are fully carried out by recent returns, which show an average sale of more than ten thousand copies weekly.

Anti-Quack.—Mother Siegel's Syrup and Warner's Safe Cure will shortly receive attention in our Patent Medicines series, with many other notable nostrums.

A New Subscriber will find it best to commence with No. 1 of Vol. VII. (May 13, 1893), as that not only began a new volume, but also our weekly issue.

M. B.—Forward the MS. to our publishers, who would give you a definite estimate for printing your pamphlet. It would probably be under £10.

T. H.—The Peptonate of Iron is made by Denaeyer's Peptones Company. It is a useful preparation.

A Wine Drinker.—The Carlowitz of the Max Greger (Hungarian) Company is the kind of wine which would suit you.

A Subscriber (Southampton).—See answer to *A Well-wisher*.

Paterfamilias.—The locality you are desirous of knowing the sanitary condition of is one of the healthiest suburbs of London; death-rate last year under 11 per 1,000 inhabitants.

Mrs. Wootton.—The seaside place about which you inquire will shortly form the subject of one of our Health Resorts articles.

EDITORIAL AND PUBLISHING NOTICES.

EDITORIAL.—The Editor begs to express his thanks to numerous correspondents, and to state that he will be pleased to receive any articles or correspondence coming within the scope of HYGIENE, reports of medical officers of health, items of general or local sanitary interest, newspapers (marked at the part to which it is desired to draw attention), &c.

PUBLISHING.—The terms of subscription not having been raised, although under the new arrangement fifty-two numbers instead of twelve will be sent out annually, all subscriptions now running will continue good for the original period.

HYGIENE will be forwarded, post free, to all parts of the Kingdom, and to all countries within the Postal Union (including the United States, Canada, France, Germany, Belgium, Italy, Austria, Hungary, Spain, Portugal, Switzerland, the Netherlands, Russia, Denmark, Sweden, and Norway), on the following prepaid terms:—Twelve months, 6s. 6d.; six months, 3s. 6d. Subscription terms for Australia, India, the Cape, and all other parts of the world can be ascertained by inquiry at HYGIENE office.

ADVERTISERS are requested to bear in mind the greatly increased circulation of HYGIENE, with its weekly issue and reduced price. In addition to the large, regular circulation, many thousands of copies are distributed annually to sanitary officials, medical men, private addresses, public libraries, clubs, hotels, &c.

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CHOLERA: ITS CAUSATION AND PREVENTION.

By SIR SPENCER WELLS, BART., F.R.C.S., &c.

THE lesson which the modern physiologist has learned from his inoculations and his cultivation of micro-organisms is, that the seed, or germ, may be either preserved or destroyed. If preserved, it may retain its latent life for many years. Then, perhaps, it may spring up, but may lack moisture and wither away, or it may fall among germicides and be choked; or, under favouring soil and degrees of temperature, it may fructify with amazing rapidity, pursuing its devastating course as it is carried onward from one favourable or unprotected circle to others, until its course is checked by natural decay, or by the opposition of intelligent men who are striving to destroy all those terribly destructive enemies of the human race called zymotic diseases.

Before 1831 no such frightful disease as cholera had been known in England. It was quite new to our oldest and most experienced practitioners. But it had been expected. It had long been known in India. In 1817 it had been terribly fatal in the north-eastern districts, not only among the native population, but with the English troops; and afterwards it could be distinctly traced in a north-westerly course—first to Persia, then to Russia, through Poland to Germany, and then at Hamburg. Its arrival in England had been foretold, and (just as expected) it arrived on the north-eastern coast of England, at Sunderland, for the

first time, in 1831. It extended over Great Britain and Ireland in a form quite new to the medical profession of the time. It then crossed the Atlantic, invaded the United States, turned to the south-east, attacked Spain, the north coast of Africa, France, and Italy. Such a course, overcoming all obstacles of winds and seasons and climates, mountains or the ocean, but following the track of travellers, at once pointed to the mode of spreading which has been observed in all subsequent epidemics. The cholera poison travels. In some way it is carried from person to person—sometimes by persons who have not themselves suffered from its effects. There is abundant evidence that in all the visitations of cholera it has been directly imported, has been taken to a place previously healthy by persons who have arrived from infected places, and has spread first to those who have come in contact with the new arrivals. How the poison is diffused is another question, and the answer must be that although other modes of spreading are not impossible, though the air-passages may sometimes first receive a dose of the poison, in the great majority of cases it is by drinking-water that the poison—the *bacillus* or *vibrio*—is multiplied and carried. It is the seed. It finds the most fruitful soil among people prepared for its cultivation by anything which is weakening or depressing; poverty, intemperance, want of fresh air, crowding, dirt, bad food, and, above all, impure drinking-water. When dirty, fecalised water is drunk, the general health is lowered. When, in addition to filth, some poison, such as typhoid or cholera, is also

added, then we have the seed sown in the soil most likely to yield an abundant harvest. Indeed, the more we learn of the origin, cause, or essential nature of cholera, the more we are led to the conviction that it is a poison which is distributed chiefly through the agency of drinking-water.

But filth is not more than a predisposing cause of disease. In all the visitations of cholera to England the poison has been brought in the same way, always from Hamburg, and always first attacking damp, low-level, crowded districts, where (as Sir John Simon put it) a "dense population lives in the atmosphere of its own excrements and refuse." But mere dampness and the vapour of putrefaction, however powerfully they may aid in the destructive work of the cholera poison, will not generate it afresh. The seed is not re-created. It is preserved, and carried. It passes over the strong, healthy people who live in high and dry places, breathe fresh air, and drink pure water. It decimates the feeble, sickly people who are crowded in damp, low-lying districts, who breathe foul air and drink fecalised water. In all the London cholera epidemics the districts most severely attacked were on the south side of the Thames. The people were living under very similar conditions. The only difference was in the source of the drinking-water supplied to them by two competing water companies.

One company supplied, in the words of Sir John Simon, "as good a water as any distributed in London, while the latter was purveying perhaps the filthiest stuff ever drunk by a civilised community." A supplied 25,000 houses, B supplied 40,000. In the A district thirty-seven persons died of cholera to 10,000 living. In the B district 130 died to every 10,000, a mortality more than three times as great. On comparing the two epidemics 1840-49 and 1853-54 it was distinctly proved that improved water-supply led to a fall in the death-rate from 125 to 37 among the people who drank water of "comparative excellence," and rose from 118 to 130 among those who "drank from even a filthier source than before." And as with cholera, so with ordinary diarrhœa, "the population drinking foul water suffered fifty-seven per cent. more diarrhœal mortality than the population drinking other water." As in South London in the two former epidemics, so in East London in 1866, another water company afforded convincing evidence of the fatal effects of drinking a mixture of water and cholera poison. For the germ of cholera is a poison—not a mineral poison like arsenic, or a chemical poison like strychnine, but incalculably more dangerous—a living poison which has the power

of multiplying itself with amazing rapidity, a *bacillus* which, having found its way into water, either stagnant or running as a stream or river, spreads, under varying degrees of temperature, very much like the countless myriads of minute beings which make the sea phosphorescent with their gleams for many miles.

The rapid increase of animal poison is incalculable. An atom of small-pox matter inoculated as fluid or borne by the wind when dry multiplies itself many thousand fold in the person so poisoned. A minute speck of the mucous discharge from an animal affected by cattle plague, if put into the blood of a healthy ox, increases so fast that in a few hours the whole of the blood of the animal, weighing many pounds, is so poisoned that every drop of the blood contains enough poison to convey the disease to another animal within forty-eight hours.

It has been proved conclusively that the spread of the cholera in East London in 1866 was distinctly due to the distribution of cholera poison by the East London water-works. It was ascertained beyond all doubt that their filtering apparatus had been out of order for a few days, and that during those few days the company had sent out polluted water from the river Lea, either unfiltered or filtered very imperfectly. And it was discovered also that just at that time the Lea had been infected by the discharges from some cholera patients who lived in a cottage which was drained into the river. They infected the river first, and the district supplied by the water company afterwards. This accident, or ignorance, or carelessness, clearly led to 16,000 attacks of cholera, and the death of 6,000 victims who were supplied with the poisoned water.

We have no test on which we can rely to decide if water which has been filtered contains organisms hurtful to human beings. There are chemical tests which will decide whether organic matter is present in water or not, or present in large or small proportions; but they cannot determine whether the organisms are injurious to health. Even the microscopical evidence of the existence of various species of *bacteria* can only determine if they are all varieties supposed to be innocuous, or if any distinct species known to be dangerous are present. The absence or presence of microphytes or their spores in water and the properties of these organisms, how they differ from one another, and how far they constitute sources of danger to mankind, should be made at once the subject of investigation. Such an inquiry could be carried out only by Government granting the necessary funds for the inquiry. In

the meantime we may all endeavour to prevent the supply of water from any polluted source. Once polluted, it is very doubtful if any process of filtration or precipitation will completely purify it. And even if sent out fairly pure from the reservoirs of water companies, it may be contaminated owing to broken or leaking pipes.

The house-cistern may be another source of danger to which every household is exposed so long as the supply is only daily, not constant. If the water companies obtained their supply from sources not liable to pollution, neither filtration nor boiling would be necessary. But then there should be a constant service, and no house-cistern in which the water might become impure after it had been delivered. With only a daily service into a house-cistern, stirring up any deposit every time the water comes into the cistern, every house should have its own filter. But if the filter is not pure, it is worse than useless. Water that passes through a dirty filter is worse than unfiltered water. Therefore the porous part of every filter should be movable, and be boiled for ten minutes once a week. Boiling all water after filtration for five minutes is an additional and often a necessary precaution, and in all epidemics of such spreading diseases as are carried by water, like typhoid fever or cholera, it is advisable to boil all drinking water for fully five minutes, and all milk which may have been diluted or adulterated by the addition of water. A constant supply of pure water being the most certain means of checking the spread of such infective diseases, the first demand should be in all towns for purer water than can be had from any river, however well the water may be filtered. Next, we must have a constant supply of it, and abolish all house-cisterns.

(To be continued.)

RURAL DISTRICT NURSES.

BY LADY VICTORIA LAMBTON.

(Being the abstract of an Address delivered at the Annual Meeting of the Rural District Branch of the Queen Victoria's Jubilee Institution for Nurses, held at Grosvenor House.*)

THOSE who have worked single-handed, be it on a country or parochial committee, or actually alone, will best appreciate the very real help the Rural District Nurses' Branch now offers. It has the organisation so

long and so much needed for supplying nurses trained both in hospital and district nursing, for helping poor districts, and provides advice, rules, information, and, what is certainly, in my opinion, not least, inspection.

Formerly one of the first difficulties which beset those who wished to find a suitable nurse was how and where to look for her. They probably advertised, and, as a result, were inundated with applications from all sorts of women, many of whom began by saying that they were not trained nurses, but, from reasons best known to themselves, were very superior to those who had had training. Others enclosed bundles of very suspicious-looking and dirty testimonials, which did not inspire much confidence, and, after considerable trouble and correspondence, one was often disappointed at finding that a very insufficient or unsuitable application had been made. Now, the Rural District Branch will supply nurses trained in both hospital and district nursing, thus meeting at the outset the wants of those who wish to raise the standard of nursing the sick poor, and the objection still made by some that a hospital-trained nurse will be too fine and too grand for a poor district. It will also insure, as far as possible, that the nurses it recommends shall be reliable and of good character.

I have been requested to tell the meeting how a rural district nurse can work in a large, thinly-populated, and scattered agricultural district, as it was thought that my experience might be useful to others, and answer some of the questions which daily come pouring into the office of the Association.

I shall, I hope, be pardoned for speaking of my own neighbourhood, and I will promise to speak only of what I know thoroughly. We have had for the last fourteen years a nurse—or, rather, a succession of nurses—at work in a very thinly populated agricultural district, consisting of four parishes, in a narrow strip of country on the coast of Pembrokeshire, about nine miles long by four or five miles wide. There are no large villages; only a few hamlets, farm-houses, and singly-scattered cottages. I do not suppose the population is over 900—certainly not 1,000. For the nurse to get over this extent of ground she must, of course, have a pony and little light cart; and this adds both to the difficulties and to the expense—say, about £15. The accounts have been audited regularly for the last ten years, and the expense has varied from £65 to £87 a year, the greater figure resulting from the purchase of a new pony or repairs to the vehicle. When the lowest expenditure occurred, we had no more for about four months out of the twelve.

* See HYGIENE, June 16, page 71, for report of the meeting.

	£	s.
One nurse, £1 a week	52	0
Allowance for coals, £1 a quarter ...	4	0
Cottage, with small garden and stable, rent per annum	5	10
Attendance on pony, 2s. 6d. a week ...	6	10
Grass, hay, oats, straw, about 2s. a week ...	5	4
Nurse's uniform	3	12
	<hr/> £76 16	

It is a little difficult to be quite accurate, as the cottage is let by the landlord at a nominal rent, a load of firewood is given every year, and another neighbour supplies as his contribution to the Nurse Fund hay and straw for the pony.

The poor people's fees cannot even come anywhere near to this total—they average 7s. 6d. a week. Supposing they were 10s. a week, which we have never reached all the year round, they would amount to only £26 for the twelve months. Perhaps it would be of interest for me to go into the question of fees—5s. (in a midwifery case) for a labourer's wife; 7s. 6d. for a mechanic's wife; 10s. for the wife of a small farmer, bailiff, head gardener, &c. But we don't get many of these; they prefer to have the doctor, and to be nursed by a woman who can remain with them a fortnight or more. Such cases are, of course, the most frequent in a healthy country district; there is not much sickness, and, as our nurse is a midwife, she cannot attend infectious or chronic cases. Our fees for sick-nursing are as follows:—

4d.	per visit to a labourer's family.
6d.	„ „ mechanic's family.
9d.	„ „ bailiff's or gardener's family.
1s.	„ „ small farmer's family.

The last-named sum (1s.) is the lowest fee charged for the nurse sitting up all night with a sick case.

This plan has worked for fourteen years, and I may claim that it is a success in this sense—that we have never had any real difficulty, after the commencement, in getting the fees paid. Up to quite lately they have been paid to the nurse herself, and we have had no committee, only a superintendent; but, in order to conform to the Rural District Branch, we have formed a committee, and one lady in each parish undertakes to collect the fees and pay them to the treasurer.

Our sources of income are private donations, some in kind, as I have mentioned, and some in money, amounting to about £35, making with the fees probably £50 to 55; and we supplement this with village concerts and entertainments on behalf of the Nurse Fund, with an occasional bazaar or sale of work

about every three years. I claim the plan to be a success, also, in this way—that, in spite of all difficulties (and they were many), in spite of opposition, which was for years continual, the nurses have proved a real boon and help to the poor.

No one who has visited the poor can have failed to be touched by their patience and resignation in illness, or to have noticed how needlessly their sufferings are aggravated by ignorant nursing and want of knowledge of even the commonest rules for a sick room, or the most elementary knowledge of cooking for the sick. If the unhappy invalid cannot eat the usual food of the family, there seems nothing but bread and tea—the tea stewed until it is almost poisonous.

The application of poultices, fomentations, or bandages in a cottage is often such as only to cause an aggravation of sufferings, and to do little real good. Making the bed is not attempted unless the patient can get up, and, with the idea of keeping him warm, all fresh air is rigorously excluded from the room, obliging him to breathe the same air again and again. Even the doctor's visit is often rendered almost useless, as his directions are misunderstood, or considered impossible to carry out, even if medical aid is not sought for till too late. I am sure that those who know cottage homes must have often seen and lamented this state, and must also know of many sad cases of permanent injury to health, of terrible risk to life, if not of actual death, arising from ignorant attendance on the mothers when lying-in. I can testify of my own knowledge to serious injuries to mothers, causing life-long pain and ill-health, to terribly prolonged sufferings and fearful risks, from the attendance at such times of the so-called village nurse—someone with no training, but only a certain amount of experience, dearly bought at her victim's risk; or from, possibly, the still less experienced attendance of an aunt or mother-in-law. Is it not pitiable that the lives of young mothers should be exposed to such avoidable risks?—that they should suffer, as they have no need to do, through the want of trained midwives?

It has been stated that 4,500 women in this country die every year in child-birth, and it has also been said that by the better training of midwives no less than 3,000 of those lives would annually be saved! Can we at all realise the misery which these 3,000 mothers' deaths cause to the working men and their families? Surely all ladies would wish their poorer sisters to have the trained and skilled attendance deemed so indispensable for themselves.

We have been told so often of all the sad results of

improper and inefficient nursing that we can no longer plead that we did not know, that we thought poor people looked after each other, and so on. They do look after each other; they are very kind, very self-denying. Let no one gainsay this fact. All praise is due to those who, after a hard day's work, will sit up with a sick neighbour, or will do her housework in addition to their own, or will take the sick neighbour's children away into their own small and already overcrowded room. But they are ignorant, and they have the temerity of ignorance, and are unable to discern danger, though it may be imminent. If, then, we think it an impossibility for ourselves and for those we love to face the time of pain and peril without the presence of a trained nurse in addition to all our other advantages, how will our consciences permit us to let other women, our poor sisters, suffer so grievously and so needlessly? Is not the state of things which I have described partly through our neglect? Does not gratitude for our own mercies call to us? Have we no thank-offering for our own safety to offer? Ought we not to, and could we not, have brought this help to the doors of the poor long ago? It is we who must do it; the poor cannot do it for themselves. They are helpless, and often they do not realise their own want. They do not know what a difference it would make to them; but it seems to me a positive duty on our part to try our very utmost to bring trained sick nurses and skilled midwives to the poor in their own homes, and the organisation of the Rural District Branch of the Queen Victoria's Jubilee Nursing Institution makes it possible, and renders the task far easier now than it has ever been before. The Branch asks for the support of the public to enable it to carry on and extend its work, to train more nurses, to do the work efficiently, to provide a home of rest for those nurses who break down in their arduous calling, and, if possible, to provide pensions for them in their old age. There can hardly be a better form of charity than this.

This country and this century have, I suppose, produced the most perfect hospitals for every kind of disease, and they have been nobly endowed and supported by voluntary contributions; but in pleading for the establishment of district nurses we plead the cause of sufferers whom a hospital would not help. District nurses bring soothing and healing to those who would not gain admission to a hospital. We have hospitals not only for our suffering fellow creatures, but there are corresponding establishments for horses and dogs, and even, I believe, for pet birds. Surely, then, the money can be found to extend the work of the Rural District Nurses' Branch, and to bring hospital-trained nurses to country districts. Her Majesty the Queen has

set a noble example in establishing the Queen Victoria Jubilee Nursing Institution. Shall we not follow it? Will not those who can afford to do so extend the benefits of the Institution, so as to bring them within reach of every village and hamlet in the United Kingdom? There is no better way of doing this than by subscribing liberally to the funds of the Rural District Branch.

[With reference to Lady Victoria Lambton's eloquent and touching appeal, we have pleasure in mentioning that the honorary treasurers of the Rural District Nurses' Branch are Mr. G. E. Martin, Old Bank, Worcester, and Sir John Lubbock, Bart., M.P. (Robarts, Lubbock, and Co.), 15, Lombard-street, E.C.—Ed. HYGIENE.]

BRITISH HEALTH RESORTS.*

NO. III.—CLACTON-ON-SEA and WALTON-ON-THE-NAZE.

THESE two seaside resorts are situated at the extreme part of the county of Essex, seventy miles from the metropolis. Although its neighbour, Walton-on-the-Naze, has been long known, Clacton has only of late years grown into repute—it might, indeed, be said, into existence.

The train service to Clacton during the season has been greatly improved, and the faster trains occupy only two hours in the journey from Liverpool-street Station. Besides this speedy mode of conveyance, the steamboats running from London Bridge daily, in the summer months, make the voyage in some six or seven hours.

The natural advantages of Clacton are very great. Although it occupies an open position, facing the German Ocean, it escapes many of the disagreeable drawbacks noticeable at other watering-places on the East Coast, owing to its aspect being nearly due south, whereas they often look directly to the east or to the north.

The marine view from the grassy heights overhanging the sea is magnificent, and gives an uninterrupted outlook of many miles over the German Ocean. On the land side of the town is a pleasant, fertile, well-wooded country, albeit somewhat flat. The town itself stands 50 feet above the sea level, and the subsoil is gravelly.

The air is bracing and invigorating, and a luxurious sense of calm retirement pervades the whole scene, vastly different from the noise, bustle, and other

* The object of this series is to direct attention to the merits of different British Health Resorts, too often overlooked and neglected. No. 1, Swanage, Dorset, appeared in *HYGIENE* for May 13th; No. 2, Lowestoft, Suffolk, June 16th.

unpleasant concomitants of London life—conditions which are also, unfortunately, too conspicuous at the more largely frequented and over-crowded seaside resorts.

Clacton is eminently adapted for persons who seek real change from active professional or commercial pursuits, real rest for over-taxed brains and over-strung nerves, and real incentives to health. From the moment that the visitor steps upon the grassy sward at the summit of the cliffs in front of the town he becomes conscious of a comparatively new state of existence, and breathes a delightfully pure atmosphere, which makes him almost instinctively inhale still deeper draughts of the ozone-laden air.

An additional recommendation in favour of Clacton is that, owing to the bracing character of the air, people can take exercise out of doors almost all day long during the hottest summer months, when many resorts situated on the south coast are unbearable in consequence of the intense, almost tropical, heat which often prevails at those places in June, July, and August.

The sands are good and extensive, and afford ample facilities for exercise and bathing. The latter is excellent, as the bather soon finds himself in deep water, instead of having, as at many places, to wade for a considerable distance through shallow water before getting into a sufficient depth for taking a plunge.

A good pier, 1,200 feet long, extends far into the waters of the German Ocean; contrasting agreeably with the old, ricketty structure, familiar to visitors at Clacton in its early days, and constructed of boats, which then served as a landing-stage for steamboat passengers. The distance to which the pier is carried insures the certainty of steamers being able to disembark their passengers at any state of the tide; under the old arrangements they were frequently subjected, at low water, to the inconvenience, delay, and risks of being landed by small boats.

At a time when sanitation is beginning to occupy more public attention it would be unfair to omit mention of the excellent water supply of which Clacton can boast. The water supply is commonly the weakest point in the local sanitary conditions of many seaside places; but at Clacton it is, on the contrary, one of the strongest, for the artesian well sunk at the Clacton Waterworks, under the direction of the late Mr. Thomas Tilley, the eminent water engineer of London, furnishes an abundant and constant supply of pure water.

In connection with Clacton we may mention that it was selected, some few years ago, as an eligible position for the Essex Convalescent Home, a commodious building standing at some distance back from the sea.

The sea has made considerable encroachments at this part of the coast. Near Walton-on-the-Naze, situated a few miles from Clacton-on-Sea, ruins of ancient buildings have been discovered, when the water was very low, at a great distance from the shore; and the site of the ancient town of Orwell, now indicated by the West Rocks, a shoal left partially dry at low ebb-tides, is now five miles from the mainland.

The original parish church of Walton, after suffering severely from the encroachments of the sea, was finally swept away at the end of the last century. Tower, chancel, monuments, graveyard, human remains—all were carried off to add to the countless masses of incongruous treasures hidden in the depths of the sea. What a keen satire upon the insignificance of man! The stately baron, the humble vassal, whose lives were as totally dissimilar as if they had belonged to different species of beings, and who, even after death, were carefully kept apart (the corpse of the one being buried with all possible pomp and ceremony, inside the sacred edifice itself, while the body of the other was hurriedly and ignominiously thrust into a rudely-dug hole in the ground outside of the church), torn by the waves from their resting-places, and hurled together to the bottom of the sea, there to keep gruesome company! The marble monument with its gilded records of the deeds and honours of "the most noble, most illustrious, and most powerful" lord, and the rough stone, bearing only the plain initials of the poor peasant, alike cast into the ocean depths, there to shift unceasingly to and fro, till their crumbled fragments, broken up into the form of sand, revisited in such guise the beach adjacent to the homes where these men had lived and died!

It is a very significant fact, in connection with the ravages of the sea at this part of the coast, that one of the Prebendal stalls of St. Paul's Cathedral, at one time endowed with land situated near Walton-on-the-Naze, is now known by the title of "*Consumpta per mare*"—Consumed by the sea—thus showing that the endowment has completely disappeared and the manner of its disappearance.

The Martello towers (named after a similarly-built tower in Italy), which stud this coast at various intervals, take our thoughts back to a past period, the commencement of the present century, when our

grandfathers erected a large number of detached forts, for the protection of the most exposed parts of the east and south-east coasts, and especially intended for the purpose of giving a warm reception to Napoleon Bonaparte, if he had succeeded in carrying out his deeply cherished, but never executed, design of invading England.

The country in the neighbourhood of Clacton-on-Sea presents opportunities for various interesting excursions. By water, Walton-on-the-Naze, Ipswich, and Harwich may be visited; from the last-named place Dovercourt (a suburb of Harwich) and Felixstowe are readily accessible. By railway, the same towns may be conveniently reached, and also Colchester (with its old castle and valuable museum), Wyvenhoe, Brightlingsea, and other places worthy of a visit. St. Osyth, Weeley Woods, Thorpe, Kirby, Holland (properly speaking Hoyland, which is its old name), Frinton, Bentley, and other villages are within easy distance.

Walton-on-the-Naze is eight miles distant from Clacton by road; another route is by railway, *via* Thorpe Junction. It is situated, as its name implies, at (or, rather, within a short distance of) the Naze, a word derived from the Saxon, *Nasse* (nose), denoting a piece of land projecting seawards. In former times, the Naze extended much farther into the German Ocean, which, as has been already mentioned, has swallowed up many an acre of ground in this vicinity, and is still encroaching.

The remains of the Priory of St. Osyth are still very extensive, although vast quantities of the materials of which it was constructed have, from time to time, been employed in the erection of more modern buildings near to it.

At the dissolution of the monasteries by Henry VIII., St. Osyth was one of the chief religious establishments in Essex. Its origin dates back to the seventh century, when Osyth, daughter of Frithwolf and of the daughter of Penda, King of Mercia, assumed the veil instead of completing her nuptials with Sibere, King of East Anglia, to whom she had been betrothed. History does not tell us whether Sibere took very much to heart this decided jilting (not an uncommon sort of thing, by the way, when betrothals were made in haste by relations, for political or territorial reasons, and repented of at leisure by the chief persons concerned), but he seems, like a sensible man, to have accepted the inevitable result of the lady's unwillingness, for, far from displaying any annoyance, he presented Osyth with the village of

Chich, where she built a nunnery, of which she was the first abbess. Perhaps, instead of chagrin, Sibere may have felt a kind of relief at being released from his engagement to such an uncomfortably mysterious personage as Osyth appears to have been, according to Capgrave, the chronicler, who wrote a voluminous account of her life (printed by Wynkin de Werde in 1516).

Osyth, when young, was placed under the care of St. Modwen, who resided at Polesworth, in Warwickshire. Here several extraordinary occurrences happened to the future saint. The most remarkable, perhaps, was that on one occasion, having been sent with a book to Edith, a sister of King Alfred, Osyth fell into a river, where she is said to have remained three days and nights; but, being eventually fished out, she was restored to life through the prayers of St. Modwen. If the Royal Humane Society should ever select a patron saint, we would strongly recommend St. Modwen to the notice of the committee of that useful institution.

But Osyth must have unfortunately outlived her friend Modwen, or the curative power of the latter must have been limited; for Capgrave relates that, in 663, a band of Danish marauders landed on the Essex coast, ravaged the adjacent country, and, reaching Chich Nunnery, endeavoured to persuade Osyth to abjure Christianity, and to adopt their form of worship in the place of her own. The lady flatly declined to comply with this request, and the ungallant Danish leader consequently ordered her head to be cut off, whereupon a scene of a most remarkable character is alleged to have ensued. No sooner had the Danish freebooters fulfilled their leader's orders than Osyth, nothing daunted, picked up her head and nimbly proceeded with it to the church dedicated to St. Peter and St. Paul, one-third of a mile distant from the scene of the tragedy. Here, checking her flight at the closed door of the church, she struck it with her blood-stained hands, and then fell lifeless to the ground. The veracious mediæval historian from whom this account is taken adds that, from the spot where Osyth suffered martyrdom, there gushed forth a spring of clear water, long afterwards reputed as possessing marvellous properties in the cure of all diseases. Osyth was duly canonised in course of time.

The nunnery which she had founded was probably destroyed by the Danes, but near to its site was subsequently erected the edifice named in memory of her. Such portions as now remain of it show that it must originally have been very extensive. W. A.

*LONDON GOVERNMENT: AS IT IS AND
AS IT SHOULD BE.**

By HARRY WILKINS, Barrister-at-Law, Vestry Clerk of
St. James's, Westminster.

HAVING dealt with the City not exhaustively, but with sufficient fulness for our present purpose, it may perhaps be well to carry our minds back to the condition of London outside the City prior to 1855, before looking at the present state of affairs.

Before the passing of the Metropolis Local Management Act, 1855, the Local Government of London was chaotic indeed. Small areas had their own paving boards, frequently with jurisdiction extending no further than a single square and its approaches, and a large number of parishes were under the control of self-elected bodies almost wholly irresponsible to the ratepayers. The not unnatural result was that while whole districts were badly cared for, the aggregate accumulation of debt was considerable. Some striking testimony as to the difference between the condition of London in 1850 and in 1885 was given by Lord Shaftesbury before the Royal Commission on the Housing of the Poor in the last mentioned year, and his evidence will repay perusal.

Municipal, as distinct from poor law, administration in London took a fresh start on the passing of the Metropolis Local Management Act, 1855. The whole population of London was then only 2,233,108, and its ratable value, including the City, £9,011,220, so that the metropolis has nearly doubled in population and nearly quadrupled in ratable value within a period of less than forty years.

The centre to which local administration was directed under the provisions of the Act of 1855 was the Metropolitan Board of Works. This Board was elected by the City Commissioners of Sewers, the vestries of the more important outside parishes, and the District Board of Works of parishes grouped together for the purposes of the Act.

The main purpose for which the Board was created was the drainage of London, but, as time rolled on, many duties of a metropolitan as distinguished from a local character were added to it. Thus, the Board, besides devising and carrying out the main drainage scheme, constructed that magnificent work the Thames Embankment, with its flourishing gardens, formed many new streets such as Northumberland-avenue, became in 1865 the authority for dealing with outbreaks of fire—until that year the Fire Brigade of

London was a voluntary organisation of the insurance offices—later on received authority to control baby-farming, noxious insects, the transit of explosives, the storing of petroleum, the freeing of the toll bridges across the Thames and Lea, and many other duties of considerable but perhaps minor importance with one exception, that of financing all London. In 1869 the first Loans Act of the Metropolitan Board of Works was passed, authorising the creation of metropolitan stock, and the financial or banking operations of the Board were so successful from the first that the Board eventually became the borrowers for and lenders to the whole of the local authorities in London, including the School Board, the Asylums Board, Guardians, and other poor law authorities, Vestries, Bath Commissioners, Library Commissioners, Burial Boards, and others. The first stock issued by the Metropolitan Board bore interest at the rate of $3\frac{1}{3}$ per cent., and was placed at £94 14s. 10d. per cent. In 1880, that is ten years later, when the last $3\frac{1}{2}$ per cent. stock was issued, it was placed at £102 2s. 7d. per cent. In the following year a 3 per cent. stock was created, and in 1890 the London County Council, who had in the meantime succeeded the Metropolitan Board of Works, issued some stock bearing interest at $2\frac{1}{2}$ per cent., of course considerably below par.

The economy resulting from this consolidation of the metropolitan debt has been considerable, probably representing at least $\frac{3}{4}$ per cent. interest per annum on the total debt of £40,000,000 comprised in the stock, or a yearly saving to the ratepayers of at least £300,000. The successful floating of this stock, moreover, led to provincial municipalities coming to the money market direct, instead of borrowing through insurance offices and other institutions, thus saving to the ratepayers of provincial towns also a large annual sum in the form of a diminished charge for interest.

So many hard words have been said of the Metropolitan Board of Works, that justice to their memory demands remembrance of some of the enormous benefits they conferred upon London without ostentatious oratory, and with a comparatively trifling addition to the burdens of the ratepayers. The purification of the river by the diversion of the sewage, the conversion of offensive mud-banks into smiling gardens, the organisation of the Fire Brigade, the freeing of the toll bridges, and the consolidation of local debt with such great advantage to the ratepayers, form a record of which any public authority may be proud.

* A lecture delivered in St. James's Hall, London.

But the Metropolitan Board of Works, an indirectly elected body, has been replaced by the London County Council, a directly elected body. Whether the change has been an improvement or not, time alone will show.

The Council consists of 118 members, and 19 aldermen, who are elected by the Council. These aldermen are merely co-optative councillors, and possess no magisterial functions or association with wards like the aldermen of the City. If the principle of indirect election to the Council is to be admitted at all, it seems to me that the aldermen should be elected by the sanitary authorities, and so identified with districts in preference to the present system of co-option. It would at least possess the merit of welding together local and central administration.

The qualification for election as councillor is practically twelve months' residence, except as lodger, for any person qualified to elect is qualified to be elected a councillor, and the electors comprise all persons entitled to vote for members of Parliament except lodgers, and those qualified under what is commonly called the "service franchise," and with the addition of female-rated occupiers of houses, peers, and occupiers of premises residing more than seven and less than fifteen miles from the qualifying property.

The Council has a chairman, a vice-chairman, and a deputy-chairman, the last of whom is paid a salary, and need not be a member of the Council, either by election or co-option, so that in the absence of the chairman and vice-chairman the Council may be presided over by one who is not a member of their body, but only (so to speak) a glorified town clerk.

All the duties of the Metropolitan Board of Works were transferred to the County Council. In addition to these, the administrative duties of the County Justices were also transferred, and certain new duties created.

The functions of the Council are therefore numerous and diversified. Speaking roughly, they may be said to comprise the main drainage of London, the maintenance of the Fire Brigade, of the Thames and Lea bridges, of parks and open spaces, the administration of the Building Acts, the prevention of floods, the control of slaughter-houses, and regulation of noxious trades, the licensing of places for music and dancing, providing accommodation for pauper lunatics, the establishment and maintenance of reformatory and industrial schools, the election of coroners, and the licensing of theatres not under the jurisdiction of the Lord Chamberlain.

With a light heart, the Council at an early meeting resolved to oppose the renewal of the coal dues, and thus heroically deprived themselves of a source of income which would probably now realise half a million a year. Whether the ratepayer or coal consumer derives any benefit from the lapsing of the dues, I will leave others to form their own conclusions.

The bulk of the income of the Council is raised in rates, but by the Act of 1888 the proceeds of what are called local taxation licences and a share of four-fifths of one half of the probate duty are paid to the Council. Together these produce something like half a million a year in aid of the rates. But these payments in aid are not clear gain, for they replaced a sum, much smaller it is true, formerly paid direct from the National Exchequer for certain local purposes, such as police, &c., and the Council have to contribute to the guardians of the poor fourpence a day for every indoor pauper. The financial result of the Local Government Act has been to largely equalise the metropolitan poor rate, the reduction in some of the East-end parishes having been nearly one shilling in the pound per annum. The West-end parishes have of course correspondingly suffered. It is quite outside my purpose in this lecture to comment on the policy of the Council, but, as a freetrader, I deeply regret the tendency towards protection which the Council has displayed. In the time of the Plantagenets labour was regulated and trade fettered, and it was not until labour and trade had thrown off these artificial restraints after a prolonged struggle that the marvellous development of national wealth which characterised the second and third quarters of the present century was manifested. Without venturing to prophesy, I incline to the opinion that attempts to maintain wages at an abnormal rate, whether high or low, will prove as futile and unsatisfactory in the nineteenth and twentieth as in the fourteenth and fifteenth centuries. The present County Council, in name progressive, is in reality reverting to the policy of the middle ages as regards questions of political economy.

We pass next to the Metropolitan Asylums Board, which is a partly elective and partly nominated body. The elective members represent the various boards of guardians in London, the smaller boards electing one member, and the larger two, or even three. The nominated members are appointed by the Local Government Board.

The Asylums Board was created by an order of the Poor Law Board, since renamed the Local Government Board, under an Act of Parliament passed in

1867, following the revelations by a representative of the *Lancet* newspaper of the condition of some of the workhouse infirmaries in London. The Act does not expressly authorise the creation of a Board for the whole metropolitan area, although no doubt the legislature intended to confer the power assumed by the Poor Law Board.

The duties of the Asylums Board were originally to provide for the reception and treatment of all the paupers of London suffering from infectious diseases, and accommodation for all the pauper imbeciles, so as to relieve the union and parish authorities of responsibility with regard to both these classes of poor, and enable them the better to classify inmates of the institutions under their charge.

These duties have since been extended to the provision and maintenance of a training ship, which is open to the reception of boys from any pauper establishment in London, and to giving accommodation to any person in London, regardless of rank or class, who is suffering from an infectious disease. The excellent ambulance service provided by the Board may be used on payment for the conveyance of patients to any hospital not belonging to the Board.

The last of the central bodies to which I shall devote a few remarks is the School Board, which has done and is doing an excellent work, although, as some of us venture to think, at an inordinate cost. There is absolutely no qualification required for election on the School Board, no rating, no period of residence, and, so far as the law requires, not even brains. The only essential is to secure a compact minority of voters pledged to your support. The School Board is the only body whose members are elected by the cumulative system of voting. Under this system the voter can pile on to one candidate as many votes as there are members to be elected. If the constituency returns four members, the voter can give the candidate of his choice as many as four votes; if seven members are returned, the voting power is increased to seven. Now, although this curious system might have been defended in 1870, when there was a considerable amount of sectarian bigotry displayed on the question of religious instruction, I have no hesitation in saying that its necessity has long since ceased, that it unduly favours the minority, that it lends itself to an easy manipulation of a constituency by one candidate, and that it discourages a large number of persons from voting on the ground that unless they are supporters of one candidate only, the value of their votes will be neutralised by a busy

minority. This conclusion ought, of course, to make the majority more determined to exercise their right and discharge their duty of voting, but experience has convinced me that the contrary is the case. In the Westminster election in 1885 the candidate who came out at the top of the poll obtained the support of one tenth only of the electorate, whereas another candidate who was not elected at all was supported by nearly one fourth of the voters. To my mind, this clearly illustrates the injustice of the cumulative vote. The old English method was for a minority to convert itself into a majority by argument, persuasion, and perseverance.

The School Board was established to educate every child of school age for whom provision was not made otherwise. Unfortunately, partly from their own zeal and partly from the indifference of the supporters of the voluntary schools, the School Board soon became rivals to the established system, and by raising the standard and at the same time the cost of conducting schools, crippled and eventually strangled many of the voluntary schools in which excellent work was being done. One class of school, the ragged school, was snuffed out, and it is very doubtful whether those who may best be described as "ragamuffins" are not to a very large extent outside school training altogether, since the schools which formerly catered for their special benefit have been destroyed. The day schools of the Board are placed in some respects under the control of what are called local managers, who are not elected by the ratepayers, but appointed by the Board. In addition to elementary education, the School Board have undertaken the establishment of training ships and truant schools, and also what is called manual instruction, such as laundry work, and evening schools.

If questions of administration were to be introduced, a great deal might be said about the School Board, but, tempting as the subject is, I must pass on to the consideration of other authorities.

Having now referred to all the metropolitan bodies of anything like a representative character—for the police, although half the expense of the force is paid for by the ratepayers, is wholly under the control of the Home Secretary, as regards number and everything else—let me direct attention to the unit of administration, the parish, and to artificial groupings of parishes for poor law and other purposes. The "hundred" and such like divisions have now no practical significance.

(To be continued.)

NOTABLE INDUSTRIES.

No. I.—BREAD AND BREADMAKING.

THERE is no article of daily consumption in such universal demand as bread; yet there is none concerning which people are more careless and indifferent. Take the case of the average housewife, for instance. She will spend much time in the selection of meat, fish, or vegetables; “no New Zealand mutton, if she knows it,” no stale fish, no vegetables, except freshly gathered. Even the milk jug forms the subject of frequent mysterious sniffs and tastings; but as regards the bread, all that seems to concern her may be summed up in a few words—price, colour, flavour. More often than not, the difference of $\frac{1}{2}$ d. or so in the 4lb. loaf is allowed to decide the question. How it is made, where it is made, and under what conditions it is made, are matters to which not the least thought is ever given, though these are matters of paramount importance, especially the last-named, which should be such as to provide for absolute cleanliness, as well as to protect the health of the consumers and that of the operatives engaged in the bakery.

It might have been reasonably supposed that the revelations made in the reports concerning metropolitan bakeries published by the late Dr. Guy, by Mr. J. B. Lakeman, one of H.M. Inspectors of Factories, and numerous other sanitarians, would have quickened public opinion, and have led to a different and more satisfactory state of things; but, unfortunately, such has not been the case. A few sensational articles appear in the newspapers, and the matter is speedily dropped out of mind. “What is everybody’s business is nobody’s business” is a proverb which applies truthfully in this respect, and our legislation is not wholly free from blame in allowing the continuance of what is a disgrace to civilisation and a blot upon the sanitation of the metropolis. In London there are at the present time hundreds of bakehouses situated underground, dark, dirty, badly ventilated, and, to put it mildly, unprovided with proper sanitary arrangements for the workpeople. The Public Health (London) Act, 1891, has the following section (26) enacting that “Sections 34, 35, and 81 of the Factory and Workshops Act, 1878, and Sections 15 and 16 of the Factory and Workshops Act, 1883, shall, as respects every bakehouse which is a workshop, be enforced by the Sanitary Authority.” Sections 34 and 35, just referred to, provide for the limewashing, painting, and cleansing of the interior of bakehouses, as well as for preventing sleeping places communicating with bakehouses, and Section 81 relates to the power of the magistrates to inflict fines for not keeping any workshop “in conformity

with the Act;” while Section 15 of the Factory and Workshops Act, 1883, makes sanitary regulations for new bakehouses, and Section 16 provides a penalty in cases where the bakehouse is unfit for use on sanitary grounds.

These enactments are well intended, but are, for various reasons, difficult to efficiently put in force. For some few years the inspection of bakehouses was taken from the vestries, as local sanitary authorities, and placed directly under inspectors appointed by Government; but it was again put in the hands of the vestries.

What we should like to see would be a short Act doing away at an early date with all underground bakehouses, insisting on all new bakehouses being constructed according to approved sanitary regulations, and requiring every baker to take out a licence, renewable annually, and liable to forfeiture in the event of any serious breach of the sanitary regulations, with penalties for minor non-compliance with the regulations. Further, we would suggest that, instead of the duties of inspection being thrown, as now, upon the overworked sanitary staff of the various local authorities, a distinct set of officials appointed by Government should be employed in this important service.

If the public could only be stimulated by a few object-lessons, if they could only see for themselves the foul, dirty subterranean dens in which much of the bread requisite to meet the daily wants of the metropolis is made, they would demand with unanimous voice that the necessary reforms we have briefly sketched should be forthwith carried out.

We will leave this part of the subject for a while and deal with the general question of bread and its dietetic value. The lower classes depend more on bread as a food than the upper and middle, who are able to supplement their dietary with various other articles of food. The working man and woman eat principally bread at every meal, it being their staple food; while the children in the very poor districts get scarcely any other food. Professor Goodfellow mentions in his book on the dietetic value of bread that extensive personal inquiries made by him in the poorer East-end districts (representing a total of 20,000 children) elicited the fact that in some localities, such as Bethnal Green, the children of the poor had other food than bread only *once* or twice a week.

The great dietetic value of bread is that it contains all the principal elements of a perfect food. It is a singular fact that children instinctively take foods thus constituted, such as bread and milk, and that these foods never produce satiety.

At the commencement of this article we dwelt at con-

siderable length upon the absolute necessity, in the public interests, of a reform in the present system of bread-making—a manufacture which all are concerned about, and that should be effected not only under different conditions, but in a different manner to that at present in vogue. Bread-making should be regarded and carried out as a science, demanding care and expert knowledge; not, as is too often the case now, at haphazard—by rule of thumb, so to speak, and in such instances commonly a particularly dirty thumb.

Take, for example, the process known as “kneading,” being the conversion of the flour with water, &c., into dough. When this operation is performed by hand—practically it is seldom performed in any other way—in a close, ill-ventilated room, with the temperature at eighty degrees or more, by workmen perspiring at every pore, the results are, to say the least, very objectionable. Indeed, we would rather leave this point to our readers’ imagination than enter upon a repetition of the disgusting details which have been published by eminent sanitarians and in the columns of *HYGIENE*; and we will proceed to describe what a perfect bakery should be like.

This should be a spacious building, of several floors, each well-ventilated and well-lighted, for a good light is an enemy to dirt in any form, the walls being built of glazed white bricks. On the upper floor there should be ample room for the stowage of the flour. This should be conveyed, after weighing it on scales which are so constructed as to tilt automatically when the prescribed weight is reached by means of a funnel and pipe into the kneading-troughs on the floor below. Two large reservoirs, each capable of holding 1,000 gallons or upwards, should be fitted on the top floor, and this water should be run through a Johnson press-filter, passing through a series of carbonised discs to the tempering cistern, where the temperature can be regulated by the aid of steam from the boiler, and the quantity of water drawn off registered by a measured glass gauge. From the tempering cistern the amount necessary for admixture with the flour to form dough can be transferred to the kneading-troughs. The potatoes used for fermentation should be washed, steamed, and reduced into a fine powder. After this is mixed with hot water and yeast the ferment is started, and then stirred up by a revolving perpendicular mixer, and turned into the dough-kneader, when the flour and more water being added, a powerful engine is set going, causing the curved blades in the kneader to revolve with great rapidity, converting the whole in less than a quarter of an hour into a white mass of dough of the same consistence throughout. Next, the kneader being tilted forward mechanically, the dough, *still untouched by hand*,

should be deposited in portable troughs placed for its reception. After remaining in the troughs for a certain period of time the dough should be weighed out, shaped into loaves, and placed in the ovens for baking. In addition to the rooms being large, clean, and well ventilated, there should be in another part of the building lavatories, baths, and dressing-rooms for the use of the operative bakers, whose health has hitherto suffered severely from unhealthy and uncomfortable surroundings.

“Ah!” our readers will say after perusing the foregoing paragraph, “such an ideal bakery would be a public boon, and an example to other bakeries.” Ideal, indeed! We have much satisfaction in informing our readers that such a bakery as we have briefly described actually exists in James-street, Westminster, near to the Army and Navy Stores, and that we saw it with our own eyes as recently as Saturday, July 1st, when the firm of Messrs. W. Hill and Son, of Bishopsgate-street, City, threw the works open to a large party of ladies and gentlemen, who were evidently taken by surprise, as well as unanimous in their admiration and approval of everything they inspected. So large was the party that the visitors had to be escorted through the building in batches—“A most appropriate arrangement in the case of a bakery,” observed the irrepressible wag who always contrives to turn up at every social gathering.

After the interesting inspection was completed the numerous guests were hospitably entertained at an elaborate luncheon, provided by the firm. The chief member of the firm, Mr. W. Neave Hill, was in the chair, supported by Mr. Lakeman, H.M. Inspector of Factories, Mr. Hoare, the Rev. W. Blackley (vicar of the parish), the editor of *HYGIENE*, Dr. Solomon Smith (*British Medical Journal*), Dr. Sykes (M.O.H., St. Pancras), Dr. Norman Kerr, and other representative men. Various toasts were drunk and speeches delivered, all conveying in unmistakable terms the utmost satisfaction with the system of bread-making as brought to scientific accuracy and sanitary perfection by Messrs. Hill and Son. By the way, it may be mentioned that in the course of the proceedings the chairman stated that his firm was the oldest bread-making establishment in the metropolis, having been in existence upwards of a century, and transmitted from father to son throughout that long period.

The Possible Introduction of Cholera into this country through the importation of hay from infected districts of South Russia formed the subject of a short discussion in the House of Commons a few nights back. It was promised, on behalf of the Government, that the question should have full consideration.

PATENT MEDICINES.

By the EDITOR.

THE next article of this series will appear in *HYGIENE* for July 14, and will give analyses of, and reports upon, various largely advertised preparations for the hair, complexion, &c., including Allen's World's Hair Restorer, the Mexican Hair Restorer, Rowland's Kalydor, Gowland's Lotion for the Skin, Ruppert's Skin Tonic, and Singleton's Golden Ointment.

We have received numerous letters from readers desirous of knowing whether the proprietors of Clarke's Blood Mixture have answered the suggestive inquiry put to them by Dr. Bartlett in *HYGIENE*, June 23, and explained how the marvel has come to pass that they advertise a testimonial from the late Dr. Alfred Swaine Taylor, F.R.S., whose trenchant exposure of Clarke's Blood Mixture was published in *HYGIENE*, May 20.

In order that no charge of unfair attack should be made, we have directed a copy of the issue in which Dr. Bartlett's letter appeared to be forwarded to the Lincoln and Midland Counties Drug Company (the proprietors of the Blood Mixture), both in the ordinary way and by registered letter. Up to the time of writing this note no reply has reached *HYGIENE* office. Should the Blood Mixture proprietors, for any reason of their own, continue to deem it desirable to withhold the information sought by Dr. Bartlett, and doubtless looked for with considerable expectation by our readers, we shall give insertion to a second communication from Dr. Bartlett, throwing a strong side-light on the Lincoln Drug Co.'s inability or unwillingness to explain away the mystery of a posthumous use of a testimonial bearing Dr. Swaine Taylor's honoured name. The natural questions suggest themselves:—1. How came an eminent chemist like Dr. Swaine Taylor, F.R.S., of Guy's Hospital, to flatly contradict, at some unknown period, the careful analysis and report which we have recorded in our columns? and 2. How was it that it was not regarded as worth while to publish so important a retraction in Dr. Taylor's lifetime, or till years after his death?

[The following articles have already appeared in the new series of patent medicines commencing in *HYGIENE* for May 13 (which began the new volume, Vol. VII.) No. I (May 13) included:—Patent Medicines; Patent Medicine Law; Mattei's Electro-Homœopathic Remedies. No. II. (May 20); Clarke's Blood Mixture. No. III. (May 27), Clarke's Blood Mixture; Chlorodyne and other Opiates. No. IV. (June 9), Revalenta Arabica. No. V. (June 16), The History of Patent Medicines; The Sequah "Prairie Flower" and Oil. No. VI. (June 23), Holloway's Pills and Ointment. No. VII. (June 30), Correspondence concerning Holloway and Mattei. The series will be con-

tinued weekly in future numbers. We hope that all our readers will give us their active aid, and support us in a task which has never been systematically attempted before. They can do much by bringing *HYGIENE* under the notice of their friends.]

REVIEWS AND NOTICES OF BOOKS.

THE BRIGHTON LIFE TABLE, BASED ON THE MORTALITY OF THE TEN YEARS 1881—1890. By Arthur Newsholme, M.D., Lond, Medical Officer of Health for Brighton, &c. Brighton: King, Thorne, and Stace. 1893.

By the aid of numerous tables and nine elaborate diagrams Dr. Newsholme has shown the superiority of Brighton, from the point of view of vital conditions, over the rest of England and Wales. The late Dr. Farr, of the Registrar-General's Department, gave to such a life table the characteristic name of *biometer*, and regarded it as holding, in all inquiries connected with human life or sanitary improvements, a similar degree of importance to that occupied by the thermometer or barometer when employed in physical research.

This life table of the district, comprised within the Parliamentary borough of Brighton, has evidently cost Dr. Newsholme much time and trouble. The task presented numerous difficulties, all of which have been successfully surmounted; the result being a work not only of local value, but which will serve as a useful model for others dealing in the same way with populous localities elsewhere. One difficulty happened at the very outset, seeing that the census population of Brighton, distributed according to age and sex, has not yet been published; but, fortunately, this otherwise insuperable impediment was got rid of through the courtesy of Dr. Ogle, the Superintendent of Statistics in the Registrar-General's Office, Somerset House, who furnished Dr. Newsholme with all particulars required.

At the census of 1881 the Parliamentary borough of Brighton contained 128,350 inhabitants; the next census, that of 1891, showed an increase to 141,970. In the decennial period extending from January 1, 1881, to December 31, 1890, the deaths numbered 23,768, making the mean annual mortality rate 17.65 per 1,000. It is interesting to note that out of the total deaths in the ten years which furnished Dr. Newsholme with the data for this Life Table, 8,369—considerably more than one-third of the total—deaths are recorded to have taken place before the age of five years had been reached, while twenty-nine deaths (seven of males and twenty-two of females) were registered as those of persons aged ninety-five and upwards.

The deductions arrived at from the Brighton Life Table are, as has been already stated, of a favourable character. Briefly summarised, they are as follows:—

The probabilities of life among males are at most ages greater in Brighton than in England and Wales taken as a whole, the ages 44·53 forming an exception to this rule. Similarly, among females, the life-probabilities are higher at all ages except between 52 and 54 years.

The numbers of both male and female survivors out of every 100,000 born is greater than in England and Wales, still greater than in Manchester, for practically every year of age until the whole number becomes extinct. The reason for specially comparing the vital conditions with those of Manchester is, that Dr. Tatham, M.O.H. for Manchester, has published a valuable contribution to statistics in a life table for that city. In further exemplification of the facts brought out by Dr. Newsholme, it may be stated that in Brighton, out of 100,000 male children born, 9,628 more survive to the end of their twenty-fifth year than in Manchester, and 3,565 more than survive out of the same number in England and Wales. The comparative numbers are still more significant when we come to deal with the period from twenty-five to sixty-five years, being that in which the largest proportion of the work of life is done; for Dr. Newsholme's life table shows that out of 100,000 males born in Brighton, 14,388 more reach the age of sixty-five years than in Manchester, and 2,739 more than in England and Wales. It is scarcely necessary, in this connection, to remind our readers that unhealthiness of occupations, as well as other deficient sanitary conditions, would help to place Manchester at a disadvantage when compared with such a town as Brighton.

The tabular statements giving the expectations of life show that in Brighton the expectation of life at birth averages 43·59 years, as compared with 41·35 years in England and Wales, and 34·71 years in Manchester. In other words, the expectation of life in Brighton is 5·1 per cent. higher than in England and Wales, and 20·4 per cent. (slightly above one-fifth) more than in the Lancashire city.

Dr. Newsholme concludes his book with a discussion of the probable reasons why the expectation of life has not improved in England and Wales, generally beyond the age of twenty in males and forty-five in females. This has been commonly explained away by (1).—The saving of life in the early years of existence, a saving which has been especially noted in respect of zymotic diseases, and phthisis and other tubercular diseases, leaving, as a consequence, a larger number of weakly

survivors, who would, under the old state of things, have fallen victims to these affections at an early age. (2).—The increased stress of modern life, to which the comparatively increased death-rate among adults is often described. Dr. Newsholme thinks that both of these reasons have been over-rated. He points out that the majority of the inhabitants of England and Wales belong to the wage-earning classes, so that their condition must necessarily have the greatest influence on the total result; and he says that the conditions of housing are still unsatisfactory as regards a large proportion of the wage-earning classes, and leave scope for improvement, though they have immensely improved as contrasted with, say, fifty years ago.

Two other circumstances, Dr. Newsholme rightly lays stress on, as influencing adult mortality, viz., the effect of increasing "urbanisation," and the corresponding increase of manufacturing and indoor occupations as compared with agricultural and outdoor occupations. As evidencing the growth of urbanisation through the migration of country people into towns, it may be mentioned that at the census of 1861, 37·7 per cent. of the total population of England and Wales was rural, twenty years later (in 1881) it had fallen to 33·4 per cent., and the last census, 1891, showed a further drop to 28·3 per cent.

FASHIONABLE FOLLIES.

It is a curious fact that the origin of many fashions may often be traced to deformities or other circumstances which it has been thought desirable to conceal in persons of high rank.

Charles VII. of France introduced long coats to hide his ill-shapen legs; full-bottomed wigs were invented by a French barber in order to cover from view an unsightly lump on the shoulder of the Dauphin; and the practice of wearing patches is said to have been devised by a lady of distinction, who was thus enabled to ingeniously obscure a wen on her neck.

Many instances of a similar character could be given. For example, an empress revived the fashion of wearing hoops (so pleasantly ridiculed by Addison in the *Spectator*) to prevent her condition from being known; and to crown the height of modern feminine folly, when a certain royal personage had the misfortune to suffer from an affection of the hip, inducing lameness, thousands of Englishwomen had their boots purposely constructed with one heel higher than the other, so that when walking they might be compelled

to limp as completely as the lady whose temporary physical ailment they probably found more easy of imitation than her good qualities.

NEWS AND NOTES.

Egg Powders.—Some people seem to regard this term as synonymous with powdered egg; in other words, they conclude that "egg" by name means "egg" by composition. In a recent prosecution of a provincial grocer the official analysis showed that the powder contained 40 per cent. of alum, the remainder being ground rice, carbonate of soda, and colouring matter.

* * *

An Aged Pilgrim.—The Russian correspondent of the *Daily News* says that among a party of pious pilgrims who arrived recently at the Troitzo-Sergievski Monastery in St. Petersburg was a hale and hearty old man aged 113 years, as duly attested by the baptismal certificate carried with his other papers. He had travelled on foot the whole distance from Luga, and showed no signs of fatigue, though many of his more youthful companions were knocked up by the long journey.

* * *

Small-pox and Fever in the Metropolis.—At the last meeting of the Metropolitan Asylums Board, the reports showed that 2,298 fever patients were under treatment at the Board's hospitals, being sixty-nine more than the number reported in the previous fortnight's returns, viz., 2,929. The numbers in the corresponding periods of 1892 and 1891 were 2,253 and 1,088 respectively. The space at disposal at present is wholly inadequate to meet the requirements of the metropolis. The small-pox returns showed a decrease during the fortnight of 79, being 397, as compared with 476 in the preceding fortnight. There is good reason to believe that the small-pox epidemic is on the decline.

ANSWERS TO CORRESPONDENTS.

A Vegetarian.—The yam is the tuber of various plants of the genus *Dioscorea*, growing principally in the East and West Indies, Japan, and the South Sea Islands. Both in chemical composition and flavour there is great similarity between the yam and the potato.

Sewage.—Write to the Local Government Board, failing redress from your local sanitary authority.

Mr. Goddard.—The weekly issue of *HYGIENE* commenced with the number for May 13, which also began the seventh volume.

M.D.—The first volume of the reprints of the articles on Patent Medicines is out of print; but the articles are in course of republication in *HYGIENE*. If you commence to subscribe as from May 13 (Vol. VII., No. 1) you will get them all in progress of time, together with numerous other analyses and reports.

A Householder.—If you will forward your full address we will advise you by letter, as the matter is urgent.

Anti-Adulleration.—If you will write to our analyst under cover to us, we will hand your letter to him.

Dr. Robinson.—Thanks for the communication.

Materfamilias.—The patent food you mention is next to useless.

Local Board Surveyor.—The address of the inventor of the process described some time back in our columns is Mr. E. Scruby, Epping.

Anselm.—We should not recommend it.

Mrs. Pengelly.—If you experience any further difficulty in getting *HYGIENE* regularly, send your subscription direct to our publishers; for twelve months, post free, 6s. 6d.; for six months, 3s. 6d.

A Sanitary Reformer.—1. The high death rate you mention far in excess of the normal ratio for a moderate-sized country town. 2. Write to the medical officer of health for the urban district.

A Tyro.—The word Zymotic is derived from a Greek word signifying fermentation, and is applied to an important class of diseases which depend, more or less, on some fermentative process in the blood, resulting from specific poison, either derived from without, or generated within, the body. This class includes epidemic, endemic, and contagious diseases, the principal being scarlet fever, smallpox, measles, diphtheria, whooping-cough, typhus, typhoid, and simple continued fever, ague, remittent fever, diarrhoea, cholera, syphilis, and erysipelas.

E. B.—The authorities have done well in the direction indicated. You must not expect too much. Bear in mind the following quotation from Pope:—

"Whoever thinks a perfect thing to see,

Thinks what ne'er was, nor is, nor e'er shall be."

H. C.—Will receive a private reply when we have obtained the required information.

EDITORIAL AND PUBLISHING NOTICES.

EDITORIAL.—The Editor begs to express his thanks to numerous correspondents, and to state that he will be pleased to receive any articles or correspondence coming within the scope of *HYGIENE*, reports of medical officers of health, items of general or local sanitary interest, newspapers (marked at the part to which it is desired to draw attention), &c.

PUBLISHING.—The terms of subscription not having been raised, although under the new arrangement fifty-two numbers instead of twelve will be sent out annually, all subscriptions now running will continue good for the original period.

HYGIENE will be forwarded, post free, to all parts of the Kingdom, and to all countries within the Postal Union (including the United States, Canada, France, Germany, Belgium, Italy, Austria, Hungary, Spain, Portugal, Switzerland, the Netherlands, Russia, Denmark, Sweden, and Norway), on the following prepaid terms:—Twelve months, 6s. 6d.; six months, 3s. 6d. Subscription terms for Australia, India, the Cape, and all other parts of the world can be ascertained by inquiry at *HYGIENE* office.

ADVERTISERS are requested to bear in mind the greatly increased circulation of *HYGIENE*, with its weekly issue and reduced price. In addition to the large, regular circulation, many thousands of copies are distributed annually to sanitary officials, medical men, private addresses, public libraries, clubs, hotels, &c.

"HYGIENE,"

A SANITARY AND SOCIAL JOURNAL.

ESTABLISHED IN 1887. PRICE—ONE PENNY WEEKLY.

The following are some of the hundreds of Favourable Notices which have been received:—

From the Right Hon. W. E. GLADSTONE, M.P.

Facsimile.

*Sir, I beg to thank you for your
concerning and also a
glance at the volume shows
me that it must contain
much matter worthy of
attention. You very ob.
Faithful
W. E. Gladstone*

"The editor of *HYGIENE* has for some time past devoted himself to the task of exposing medical quackery. We hope that all our readers will make it their business to acquaint themselves with its contents."—*British Medical Journal*.

"Every medical man should make himself acquainted with the articles on patent medicines in *HYGIENE*, and make them generally known also amongst his patients."—*Provincial Medical Journal*.

"The editor of *HYGIENE* has issued a series of articles exposing the pretensions of popular patent remedies. . . . He has furnished thinking people with weighty reasons."—*Saturday Review*.

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"*HYGIENE* is a valuable periodical on all subjects pertaining to health."—*Huddersfield Examiner*.

"That very useful and instructive sanitary and social journal entitled *HYGIENE*."—*Kingston and Surbiton News*.

"*HYGIENE* is a journal calculated to do good service to the community by spreading a knowledge of the conditions necessary to the maintenance of health. It is excellently conducted, while the articles are well written and entertaining."—*Southampton News*.

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"*HYGIENE* should be read by all who are desirous of becoming acquainted with the laws governing health and life. Its articles combine instruction with interest, and are written by men who are thoroughly competent to treat of the subjects on which they write."—*Hampshire Express*.

"*HYGIENE* in the present number gives, in the first place, a biography of Sir Edwin Chadwick, described as the father of sanitary science. Valuable precautions against epidemic disease are also given; and there are various other articles of an instructive and interesting character."—*Rosendale Gazette*.

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CHOLERA: ITS CAUSATION AND PREVENTION.

By SIR SPENCER WELLS, BART., F.R.C.S., &c.

WE must next ask, What do we know about the seed, or germ, or microbe, or *bacillus*, or *vibrio* which is the cholera or is the cause of the symptoms which are known as the disease named "Asiatic cholera"? Much that we know has been learned since the last epidemic of cholera in Europe. After the former visitations in 1831, 1848-49, 1853-54, all that could be said was that cholera was a "filth disease," that its essential cause must be something of the nature of a ferment which grows and is carried best in dirty water, and is most dangerous among a feeble, dirty, ill-fed population. Now our pathological knowledge is much more precise. When Koch first published his discovery of the "*comma bacillus*" and made known his method of cultivating it on gelatine plates, many doubted how far the origin and propagation of cholera could be explained by the action of this organism. But more recent investigations have removed most of such scepticism, and we now know something of the natural history of the cholera microbe—that it flourishes in the presence of oxygen, and may be propagated both in water and in earth. In the absence of oxygen it does not germinate, and either withers away or forms active poisonous materials. Other somewhat similar *vibrios* appear to affect the respiratory more than the intestinal passages; so that, although infection by the air must be considered as possible, it is equally certain that

drinking-water is by very far the most common mode of conveyance. The poison does not travel as a seed carried by the wind, but it travels along the lines of human intercourse, slowly by pilgrims and caravans, rapidly by railways and steam-vessels. When in 1883 the cholera *bacillus* was first described it was regarded as a straight, slender rod. Afterwards Koch showed that it was curved like a printed comma, and it is now generally recognised and designated "*vibrio cholerae Asiaticæ*."

It is very doubtful how the cholera was brought to Hamburg last summer. Many believe that as it followed the course of the railways from India through Russia in Asia to European Russia, it was taken by Russian emigrants on their way to America to Hamburg, the port of departure. There is much to be said in favour of this opinion and much on the other side.

"Abolish zymotic diseases." This is the task we should set before the nations of the world as the lesson taught by the epidemic of cholera in 1892. Our governments, our municipalities, the clergy of all denominations, our own households, should learn that no case of cholera, yellow fever, typhoid fever, scarlatina, diphtheria, small-pox, measles, or whooping-cough can be looked upon as natural, providential, or unavoidable; but that the existence of such a group of preventible diseases is a proof of ignorance or negligence, and therefore a disgrace to the country, to the town, to the family. And when men learn how much easier it is to prevent than to cure—that none

of these diseases are spontaneously generated—we shall have gone a long way towards their total abolition, and they may ultimately be banished.

So long as the drinking-water of the people in town or country is supplied or obtained from sources liable to pollution, so long will the danger to public health be present and occasional epidemics certainly arise. The modern custom of the disposal of the dead bodies of those killed by zymotic diseases by burial in the earth is a source of great danger to the living. More must be said as to the danger of poisoning the sources of water-supply by ordinary sewage and drainage and by the discharge of the cholera *vibrios* into streams and rivers. But here it is necessary to make better known the fact that the germs of infective disease may be long preserved in the earth. For this knowledge we are indebted to Pasteur, after the examination of the soil of fields where cattle had been buried whose death had been caused by that fatal disease known as "*charbon*," or splenic fever. The observations of Darwin "on the formation of mould," made when he was a young man, are curiously confirmatory of the more recent conclusions of Pasteur. In Darwin's paper, read at the Geological Society of London in 1837, he proved that in old pasture-land every particle of the superficial layer of earth overlying different kinds of subsoil had passed through the intestines of earth-worms. The worms swallow earthy matter, and after separating the digestible or serviceable portion, they eject the remainder in little coils or heaps at the mouth of their burrows. In dry weather the worm descends to a considerable depth and brings up to the surface the particles which it ejects. This agency of earth-worms is not so trivial as it might appear. By observation in different fields, Darwin proved in one case that a depth of more than three inches of this worm-mould had been accumulated in fifteen years, and in another that the earth-worms had covered a bed of marl with their mould in eighty years to an average depth of thirteen inches.

Pasteur's later researches on the etiology of *charbon* show that this earth-mould positively contains the specific germs which propagate the disease, and that the same specific germs are found within the intestines of the worms. The parasitic organism, or *bacteridium*, which, inoculated from a diseased to a healthy animal, propagates the specific disease, may sometimes be destroyed by putrefaction after burial. But before this process has been completed, germs or spores may have been formed which will resist the putrefactive process for many years, and lie in a

condition of latent life, like a grain of corn or any flower-seed, ready to germinate and communicate the specific disease. In a field in the Jura, where a diseased cow had been buried two years before, at a depth of nearly seven feet, the surface earth not having been disturbed in the interval, Pasteur found that the mould contained germs which, introduced by inoculation into a guinea-pig, produced *charbon* and death. And, further, if a worm were taken from an infected spot, the earth in the alimentary canal of the worm contained these spores or germs of *charbon* which, inoculated, propagate the disease. And the mould deposited on the surface by the worms, when dried into dust, was blown over the grass and plants on which the cattle feed, and might thus spread the disease. After various farming operations of tilling and harvest, Pasteur found the germs just over the graves of the diseased cattle, but not to any great distance. After rains or morning dews, the germs of *charbon*, with a quantity of other germs, were found about the neighbouring plants, and Pasteur suggests that in cemeteries it is very possible that germs capable of propagating specific diseases of different kinds, quite harmless to the earthworm, may be carried to the surface of the soil ready to cause disease in the proper animals. The practical inferences in favour of cremation are so strong that, in Pasteur's words, they "need not be enforced."

The relation between burial of the dead in the earth, the pollution of the supply of drinking water and the spread of cholera, typhoid fever, and such infective diseases, is lately being recognised, and the lesson cannot be too strongly forced upon public attention. A body full of cholera or typhoid *bacilli* is buried in the earth with or without a coffin. The coffin may retard the process of escape into the earth for a time, possibly until the *bacilli* have perished as putrefaction goes on. But sooner or later, under favourable or unfavourable conditions of temperature and moisture and soil, the *bacilli* infect the surrounding earth and the water which runs from it into adjacent rivulets. This has been amply proved in the case of the *bacilli* of typhoid fever. The terrible epidemic which devastated the town of Plymouth, in Pennsylvania, seven years ago, was clearly proved to have originated in the discharges from one patient having gained access to the drinking-water supply to the town. In Philadelphia about a thousand persons die every year from typhoid, and it has been distinctly proved that the water supplied to the city is contaminated by leaking and drainage from seven large cemeteries

which poison the rivers and reservoirs. In the words of a distinguished physician, "these little drops of water, squeezed by Father Time from the dead, are loaded with sure death for the living who drink of it." Some persons doubt whether poison can be carried through the earth for any considerable distance; but the fact has been experimentally proved as to saline solutions.

It is no doubt true that the seeds or germs of epidemic diseases may be destroyed, wholly or partly, after burial by the process of putrefaction. Probably they are often totally destroyed. But occasionally they are preserved with all their destructive powers for many years. In one very remarkable case the seeds of scarlatina germinated after being buried for thirty years. In a Yorkshire village part of a closed graveyard was taken into the adjoining rectory garden. The earth was dug up, and scarlatina soon broke out in the rectory nursery, and from thence spread over the village. It proved to be of the same virulent character as the scarlatina which thirty years before had destroyed the villagers buried in the precise part of the churchyard which had been taken into the garden and dug up. No other explanation of the outbreak could be offered. And what is true of *charbon* and of scarlet fever seems to be true of yellow fever. Indeed, the investigation as to yellow fever has been carried out much more fully.

(To be continued.)

PUBLIC HEALTH REPORTS.

Kensington.—Dr. Orme Dudfield reports that in the four weeks ending on June 17, 82 cases of scarlet fever were recorded in this metropolitan district, fortunately with a result of only two deaths. But in the whole of London the deaths from scarlet fever during the same four-weekly period amounted to 118, as against 83, 91, and 90 in the preceding corresponding periods, and showing an excess of 47 above the corrected average mortality from this disease.

The following remarks throw so much light upon the spread of scarlet fever that we reprint them *in extenso* from Dr. Dudfield's report:—

"HOW SCARLET FEVER IS SPREAD.—Two sets of cases have occurred lately which illustrate what is, I fear, a common cause of the spread of scarlet fever. The particulars and the mode of discovery are interesting.

"In the first instance, two children of a coachman living in a South Kensington mews having died of the disease in hospital, the man's employer informed me that there was

reason for believing that another man's children, living in the same mews, had had scarlet fever and had not been isolated—in fact, had been constantly playing in the mews with other children. I visited the family, and found two children actively 'peeling' after scarlet fever, the mother pretending that this symptom was due to the children having simultaneously plunged both their hands into hot water! These children had not only been out in the mews, as alleged, but they had also been going to school. The parents professed ignorance of the nature of the illness—in fact, said the children had not been ill; no doctor had been called in. But their story was inconsistent, as the mother also said they thought the complaint was measles, although she admitted that both of the children had suffered from this disease last year. There is good ground for believing that the mother had told two persons at least that the children had 'the fever'—one of them being the schoolmistress, who thereupon excluded them from school; the other a milk-carrier, who thereupon ceased to leave milk at the house, and removed his own children from the school in question. It is satisfactory to know that these children did not infect the children who died, whose illness preceded that of the offending children.

"In the second instance referred to, discovery was brought about in a way that illustrates the carelessness of people in matters of public and personal interest. The illness of a child from scarlet fever, in a small street at Notting Hill having been notified, the inspector visited with a view to obtain removal. This step being objected to (although carried out), the next-door neighbour taunted the inspector with not having interfered with other cases in the street (where more than one was known to have occurred previously); and she let out that children living at another house were 'peeling,' and going about as usual. The inspector at once visited the said house, and found two children 'peeling.' I saw them on the following day, and there could be no doubt that both had had scarlet fever, although the mother pretended ignorance, whilst not denying that they had been unwell with a red rash, &c. No medical man had been called in. It appeared that the younger boy had fallen ill first. Subsequently an elder brother fell ill, and was taken by his grandmother to an empty house in another parish, where she was employed as caretaker. This child's attack appears to have been mild, and in a few days he resumed his attendance at a large Board school.

"It may be difficult to prove *guilty* knowledge in either of these two instances; but, if sufficient evidence can be obtained, the parents should be prosecuted for the offence of exposing the infectious sick in public places. They might also be prosecuted on another count—viz., for not having notified the cases to me, in conformity with the provision in the Public Health Act expressly designed to meet such cases where medical aid is not obtained."

Noxious Industries.—An inquest held on Harriet Walters, of Sedgley, Staffordshire, elicited the fact that the deceased, who was only seventeen years of age, died from lead-poisoning. She had been at her employment only five months, which was brushing enamelled ware at a japanner's in Wolverhampton, her wages averaging only from seven to eight shillings a week.

*LONDON GOVERNMENT: AS IT IS AND AS IT SHOULD BE.**

By HARRY WILKINS, Barrister-at-Law, Vestry Clerk of St. James's, Westminster.

(Continued from page 110.)

THE origin of the "parish" is lost in antiquity. Many claim that the parish was ecclesiastical in origin, others that the church was added to the parish. However this may be, it is certain that a parish and a parish church were joined together at a very early date, until a parish came to be defined as a district with a church appropriated to it exclusively, as in later times a parish was defined for poor law purposes as a place which maintained its own poor.

The churchwardens are the ancient representatives of the parishioners, by whom they were formerly chosen in an open meeting of all householders. To the churchwardens, letters from the King were addressed, recommending the collection of alms in seasons of special distress (whether caused by dearth or warfare), and relating to various other matters.

When the Poor Law of Elizabeth was passed, the churchwardens were joined to a newly created body called the overseers of the poor for raising funds by rate or otherwise for the relief and employment of the poor. Overseers are appointed annually by the Justices of the Peace on the nomination either of the outgoing overseers or of the parishioners, the latter practice being now almost universal. It is a compulsory office and unpaid, with a penalty attached for not serving if appointed.

In many parishes in London, churchwardens and overseers have been relieved of all real civil duties. In others, they still form a hole-and-corner body for the levying of rates. They have virtually no power to relieve the poor, but they form a quasi-corporation in whom is vested property belonging to the parish. But although overseers might now be abolished throughout London with advantage, their continuance affords us an instance of the wisdom of our ancestors in using existing institutions instead of creating a fresh one for every additional duty. Parochial life centred round the church; therefore the churchwardens were taken as the basis of the compulsory poor law, and for a considerable period church-collections and a compulsory rate jointly provided funds for relieving the poor. Not in London alone, but throughout the country, churchwardens and overseers made the

rate, personally collected it without payment, and relieved the poor. This system was sufficient for small areas where neighbours knew each other, but obviously was too primitive in character to continue as population increased, and if the churchwardens and overseers now make a rate, their function in so doing comprises no more than signing a book prepared by their clerk, and employing a paid officer to collect it. The relief of the poor has been transferred to the guardians of the poor, who employ paid officers for this work also.

There were formerly three kinds of vestries—open, select, and elective. In London, outside the City, all vestries are now elective.

Open vestries were meetings of all ratepayers; in fact, parish meetings. They elected churchwardens and other parish officers, such as constables, aleconners, beadles, &c., and managed the general affairs of the parish. Open vestries were convened by the churchwardens at their discretion.

Select vestries were bodies which either by special legislation or by prescription had acquired the right of filling up by their own votes vacancies in their body caused by death, disqualification, or resignation. Their duties were similar to those of the open vestries, including the making of a church rate, but they regulated their own time of meeting.

Elective vestries are a comparatively modern development resulting from legislation of a permissive character early this century. The principal Act under which elective vestries were formed in London was passed in 1831, and was known as Hobhouse's Act. This Act was superseded in London by the Metropolis Local Management Act passed in 1855, which made an elected vestry universal in London. The Act divided the parishes for this purpose into two classes, the more important being placed in Schedule A and the remainder in Schedule B. The difference is this: the parishes in Schedule A are managed by the vestry; those in Schedule B elect a vestry who elect members of a board of works for the district in which they are grouped. There were originally twenty-three Schedule A vestries, and the number has since been increased by transfer from Schedule B to twenty-seven, and there are now thirteen district boards of works, some comprising only two parishes and one as many as nine.

The qualification for election upon a vestry of either description is occupation and rating combined. The standard amount of assessment to qualify is a minimum of £40, but in parishes where the number of assessments

* A lecture delivered in St. James's Hall, London.

at £40 and upwards does not exceed one-sixth of the total number of assessments in the parish, the occupation of property rated at £25 is a sufficient qualification. The vicar or rector and churchwardens of the parish are *ex-officio* members of the vestry.

The electors are ratepayers who have been in occupation for twelve months or more, and have paid all rates due from them more than six months before the date of election. The nomination takes place at a ward meeting, and in case of a contest the election is by ballot, but not necessarily a secret ballot, although in practice the use of official ballot papers, and consequent secrecy, is extending. No elector can give more than one vote to any candidate. In my experience, a poll for vestrymen usually draws a larger proportion of voters to the poll than any other election, parliamentary alone excepted.

The duties of the vestry of a parish named in Schedule A to the Act are varied and responsible, but are not identical throughout London. This arises from the Act having transferred to the newly-constituted vestry all duties formerly performed by the superseded vestries, and meetings of parishioners in the nature of vestries, except such as relate to the poor and the church. Local legislation vastly different in scope thus became engrafted on the new system. To my mind, this diversity is one of the weakest points in local administration in London.

Speaking generally, all vestries of Schedule A parishes are responsible for the paving, lighting, cleansing, regulating, and drainage of their district. Subsequent legislation has extended these districts until they may be said to comprise not only the health of the district, but almost of every individual. Nuisances of all kinds, insanitary areas, the adulteration of food, the oversight of bakehouses, and latterly of the workplaces of outworkers for the occupiers of factories and workshops, disinfection, the provision of mortuaries, and precautions to prevent the outbreak or spread of an epidemic, all fall within the scope of a vestry. The low rate of mortality in London for many successive years shows that the sanitary authorities, including the district boards—to which reference will be made presently—have not been altogether unsuccessful in their efforts to improve the health of the community. The vestries have, moreover, extensive but ill defined common law powers.

Vestries both in Schedules A and B have the appointment of churchwardens—either solely or in conjunction with the minister of the parish—the nomination of overseers in cases where a vestry or parish meeting

is formerly nominated, and the appointment of commissioners or boards for carrying into execution the Acts relating to baths and washhouses, libraries and burials, where these Acts have been adopted.

Several parishes in Schedule A are also the rating authority, making the rate, appointing the collectors and supervising the collection. In none of the parishes in Schedule B is this the case, so far as I am aware.

It will thus be seen that with the exception of police, markets, gas and water supply, all of which in some manner or other are excluded from the functions of the local authorities in London, outside the City, a vestry in Schedule A performs all the duties of a municipality. Many of the parishes of London indeed exceed in population and ratable value all but six or seven of the largest corporate towns in England.

Schedule B vestries have only duties of delegation to perform. They appoint, as I have already said, certain commissioners and boards, to the list of which must be added members to represent their parish upon the district board of works. No expenditure from the poor rate can be incurred without their consent, either by the Baths and Washhouses Commissioners, or by the Burial Board, but they can exercise little effective control over the administration of the other bodies whom they call into being.

The functions of a district board of works correspond with the executive duties of a Schedule A vestry; that is, the paving, lighting, cleansing, regulating, and drainage of the district, and the administration of the Acts relating to the public health, adulteration, &c. A district board of works has no power of direct rating, but levies its expenses by precepts upon the overseers of the various parishes which make up the district. Members of a district board must be qualified by occupation and assessment to be members of the vestry by whom they are elected, although it is not necessary for them to be vestrymen. There are no *ex-officio* members of the district board.

The accounts of both vestries and district boards are audited by auditors chosen by the parishioners. Auditors must possess the same qualification as vestrymen, but are disqualified from serving in both capacities.

Another local body of considerable importance is the board of guardians of the poor, which may comprise elective, *ex-officio*, and nominated members. Elective members must be rated in the parish for which they are elected at such an amount as the Local Government Board, by order, may direct. The present qualification is a £5 rating, which has a very different

significance in central London and rural districts. Neither occupation nor residence in the parish is needed. *Ex-officio* guardians are those justices of the peace for the county who are resident within the parish or union for which the board is constituted. In some parishes the *ex-officio* guardians outnumber the elected members, but comparatively few justices attend the meetings of the board with any regularity. In parishes where there are no or few justices entitled to act, the Local Government Board have power to nominate guardians.

The election of guardians is by voting paper and a system of plural, but not cumulative, voting. The number of votes extend from one to twelve according to whether the voter is the occupier of premises rated at £50 or less, or is the occupier and the owner of property rated at more than £250.

The main duty of the guardians is the administration of the poor law, but they have also the administration of the law relating to vaccination, and the appointment of superintendent and district registrars of births, deaths, and marriages. Both these matters, in my judgment, would better rest with the vestries. I cannot conceive a better way of discouraging civil marriages than to require every couple united in this manner to begin their married life in the workhouse, or at least in the guardians' offices. Vaccination and registration have clearly more relation to public health than to poor law.

Boards of guardians act for a parish or for a union of parishes according to the discretion of the Local Government Board. Whether a parish is in union with another or not has a curious result upon a matter in no way connected with the poor law—I mean the assessment of property.

In parishes not in union the assessment committee is elected by the vestry. In unions, it is elected by the guardians. Why this should be, I am at a loss to know. I could understand the logic of all assessment committees being appointed by the guardians, or of all assessment committees being appointed by the vestries and district boards, but why, in neighbouring parishes, a poor law authority should, in one case, be the assessing authority, and a (so to speak) municipal authority in the other is not clear. If the assessment of property is a poor law matter in a union, why not in a parish. I venture to suggest that it is contrary to public policy to associate any duties with the workhouse, except the relief of the poor.

Perhaps I should add that assessment committees are appeal bodies only. Property is assessed in the first

instance by the overseers, or bodies acting as overseers, who have no appellant jurisdiction at all. Objections to their action are heard by the assessment committee. But overseers are not always overseers; that is to say, in some parishes the vestries, and in others bodies elected under local acts are overseers for rating purposes. There are still a few other local bodies to be noticed, but they may be dismissed in a very few words. They include burial boards, baths and wash-houses commissioners, and library commissioners. These are all elected by the vestry, and might well be committees of that body, effectively controlled by them, instead of their being semi-independent authorities. Then, again, parishes are arranged in groups to form school districts or sick asylum districts. These boards are elected by the boards of guardians, usually, but not necessarily, from among their own members, instead of being semi-independent authorities.

The Common Poor Fund, which has become an institution of London, is administered by the Local Government Board. Its object is to make certain charges metropolitan instead of local in character, so that, while a parish with a large number of indoor poor to maintain upon a small ratable value draws from the fund, a parish with a small number of indoor poor and a large ratable value contributes to the fund. This fund now plays an important part in local government in London, and, wisely I am inclined to think on the whole, is not administered by any elective body.

(To be continued.)

Sewer Ventilation.—The excessively hot weather for some time past has again brought into prominence a possible danger to the members of the House of Commons, as well as to the peers sitting in the adjacent House of Lords. As long back as 1886 the surveyor to the Westminster District Board of Works, under examination before a Select Committee of the House of Commons, stated that there was no doubt as to the gases from the metropolitan low level sewer coming into the sewers of the Westminster district, and subsequently discharging through the street ventilators and other communications with local buildings. In reply to a question put in the House of Commons by Sir Henry Roscoe, F.R.S., the First Commissioner of Works (Mr. Shaw Lefevre) stated that the obstacle in the way of efficiently ventilating the sewers in the district, by the erection of suitable shafts and powerful exhaust-furnaces, so as to convert the street ventilators into inlets for fresh air instead of outlets for foul gases, arose from the difficulty in finding a suitable site. He is at present in communication with the London County Council on the matter.

PATENT MEDICINES.*

By the EDITOR.

No. VIII.—Allen's World's Hair Restorer; Mexican Hair Restorer; Singleton's Golden Ointment for the Eyes; Rowland's Kalydor, and Gowland's Lotion for the Skin; Mrs. Anna Ruppert's Skin Tonic.

In previous articles we have dealt with quack preparations for internal administration. In the present, we will speak of others for external employment. Even the most highly-vaunted and most widely-advertised of these turn out to be of a very ordinary, or—worse still—dangerous composition, when they are submitted to the close scrutiny of the analyst. We give the analyses of some of these:—

1. *Allen's World's Hair Restorer*.—An analysis of the contents of an eight-ounce bottle indicated $75\frac{1}{2}$ grains of sulphur and 87 grains of acetate of lead. Considering the low commercial value of these two drugs, the most expensive, however, to be found in the preparation, the price at which it is sold cannot fail to give a very handsome return to its proprietors. If it were of corresponding value to persons who fondly and foolishly imagine that luxuriant crops of hair will adorn their smooth, shiny scalps as the results of its persistent application, the charge made for it would, of course, be a different thing altogether.

2. *Mexican Hair Restorer*.—The foregoing remarks apply to this nostrum, which is as much overrated as over-advertised. It consists of acetate of lead 1 part, precipitated sulphur 4 parts, glycerine 30 parts, and water 160 parts. The only ingredient capable of promoting capillary growth is the glycerine, and that is so completely swamped with water in the proportion of more than five parts to one as to be rendered inert.

3. *Singleton's Golden Ointment for the Eyes*.—Golden only in name, for it contains not the faintest trace of the precious metal. As a matter of fact, it is practically

* Some of the articles constituting this series have already appeared in HYGIENE when published as a monthly magazine, and were reprinted in two volumes. But as one of these—Vol. I.—is out of print, we propose, at the request of many readers, to commence a new series, as much of the matter will doubtless be fresh to the great majority of the readers of HYGIENE in its altered form. New reports and analyses will appear from time to time. No. I. (May 13th) included:—Patent Medicines; Patent Medicine Law; Mattei's Electro-Homœopathic Remedies. No. II. (May 27th), Clarke's Blood Mixture. No. III. (May 27th), Clarke's Blood Mixture; Chlorodyne and other Opiates. No. IV. (June 9th), Revalenta Arabica. No. V.—(June 16th), The History of Patent Medicines; The Sequah "Prairie Flower" and Oil. No. VI.—(June 23rd), Holloway's Pills and Ointment. No. VII. (June 30th), Correspondence about Holloway and Mattei. No. VIII. (July 7th), Concerning Advertised Testimonials of Clarke's Blood Mixture.

identical with the nitric oxide of mercury ointment of the old pharmacopœia, sometimes efficacious in cases of ophthalmia, but in the majority of instances of eye diseases worse than useless. It is unfortunately much easier to tamper with the eyes than it is to remedy the mischief resulting from indiscriminate and injudicious treatment.

4 and 5. *Rowland's Kalydor and Gowland's Lotion for the Skin*.—Mr. Henry Beasley, a good authority, and a voluminous writer on all matters connected with pharmacy, states in his "Druggists' General Receipt Book" that either of these well-known cosmetics, so dear to the fashionable and vain amongst our lady friends, may be imitated as follows:—Bitter almonds (blanched) 1 ounce, corrosive sublimate 8 grains, rose water 16 ounces. In the last (ninth) edition he says that, on more recently examining a sample of Kalydor, he could not find any mercurial ingredient, so that the corrosive sublimate has been wisely—let us hope permanently—eliminated.

6. *Anna Ruppert's Skin Tonic*.—But if the makers of Kalydor have arrived—tardily, it must be admitted—at a consciousness of the dangerous character of so powerful a drug as corrosive sublimate (bichloride of mercury), it seems that there is at any rate one cosmetic vendor who is absolutely reckless in this respect—a Mrs. Anna Ruppert, self-styled the "celebrated American Complexion Specialist." Now this individual does not hesitate to put as much as a grain of corrosive sublimate to every ounce of a largely advertised lotion for the skin. So Dr. B. H. Paul, the well-known analyst, says in his report upon the composition of a specimen of this lotion submitted to him for examination; and he adds the significant observation that the specimen submitted to him was "weaker than other samples previously examined," so that the manufacture must be conducted in such a careless, haphazard way that the actual quantity of this powerful poison would appear to be left to chance.

A leading medical paper, the *British Medical Journal*, of April 29th last, gives the details of a case of acute inflammation of the jaw from mercurial poisoning, reported by Dr. W. H. C. Staveley, F.R.C.S., L.R.C.P. Lond., and Mr. R. Denison Pedley, L.D.S., F.R.C.S. Edin. The patient, a widow lady, rather over thirty years of age, was first seen by Dr. Staveley, who recommended her to consult her dentist on account of her teeth. She was suffering from great weakness, boils, severe pains in the upper and lower jaw, the teeth were all loosened (several having to be removed in consequence of this condition and of abscesses forming at their base), and the bony structure of the jaws was much inflamed

and thickened. After the lady had been under treatment for some time her sister informed Dr. Staveley that the patient had for three months previous been using a lotion for her complexion, and that the symptoms had commenced shortly after she began to use it, becoming gradually intensified until she was compelled to seek medical advice. The lotion turned out to be Mrs. Anna Ruppert's special Skin Tonic, and the large proportion of corrosive sublimate found in it by Dr. Paul, F.C.S., clearly demonstrated the cause of the mercurial poisoning, the severe, continuous pain, the injury to the teeth, and all the other alarming symptoms.

We make the following extract from the lady's own statement:—In October, 1892, I went to Mrs. Anna Ruppert, in Regent-street, my complexion not being good; otherwise I was in good health. She looked at my face with a magnifying glass, and said that her preparation would remove spots. She recommended me to try her special treatment. Next morning she sent me by parcel post three bottles of lotion, three cakes of soap, one pot of ointment, and one box of powder, for which I paid two guineas. The interview lasted about five minutes. About a month after I had been to her I began to be sleepless, lost my appetite, and my hands became so tremulous that several of my friends noticed it." The remainder of her statement deals with the various symptoms which have already been detailed. Had she not fortunately consulted a medical man when she did, there is little doubt that, by continuing the use of this lotion, the lady might have died of mercurial poisoning. As it is, she has suffered months of agony and misery, and her health is impaired.

The poor victim has certainly had a great deal to show for the two guineas which she foolishly handed over to Anna Ruppert for "special treatment." A pamphlet which one of our lady readers has sent us, entitled "The Book of Beauty," by Anna Ruppert, of the usual catch-penny style of such publications, states that "the skin tonic is not in the least to be feared," from which one would be led to infer that the laws of nature are suspended when the "special treatment" is adopted, and that, in Anna Ruppert's hands, the most powerful mineral poisons are miraculously rendered absolutely innocuous. Still, we would almost as readily believe this as we would the assertion that it "is endorsed by the best living physicians." If Anna Ruppert had not occupied so much of her pamphlet with the most glowing praises of herself, she might have found room for the names of these "best living"—wonderfully ignorant and credulous individuals, whoever they may be, presuming that they exist outside her pamphlet. Among other information which she does

give is a price-list of her "specialities":—Skin tonic, single bottles, 10s. 6d., three together 25s., usually required—what for? A less quantity would produce mercurial poisoning, according to the unfortunate widow's experience—Dyspepsia Cure and Liver Regulator, 4s. 6d., and so on.

We have mentioned Mrs. Anna Ruppert can be "consulted" at Regent-street, London; but in an advertisement taken from a ladies' journal, no less than fourteen other addresses are given at Brighton, Edinburgh, Dublin, Manchester, and other large British towns, as well as at Paris, Berlin, Vienna, Calcutta, Sydney, &c. Sir Boyle Roche's bird, which, according to the eccentric baronet, was so swift in its flight that it could be in two places at the same time, sinks into insignificance as compared with a complexion specialist who can be "consulted" at fifteen different places. Perhaps some of these addresses have slipped in in error. Our reason for this suggestion is that Berlin is included. It is scarcely probable that Mrs. Anna Ruppert would regard this city as a happy hunting ground, seeing that some time back she visited Berlin, and advertised her "specialities." The municipal authorities there have a short method of dealing with such cases, and the President of Police for Berlin cut short Mrs. Anna Ruppert's stay in the German capital by the issue of a public caution, of which the following is a literal translation:—

NOTICE.

As a cure for the most varied skin diseases, a Mrs. Anna Ruppert recommends her Skin Tonic in the daily newspapers. This secret remedy consists of a solution of corrosive sublimate in water, with the addition of some glycerine, and it is slightly perfumed. It is sold in bottles containing about five ounces for the sum of eleven shillings, while the real value of the bottle's contents is less than three farthings. This announcement is hereby given in order to warn the public.—THE PRESIDENT OF POLICE.

Three farthings' worth of stuff for eleven shillings! There is little room for wonder that Mrs. Anna Ruppert, who assures her readers that she knows her "profession" thoroughly, promises to "cheerfully give" advice to all comers, when she can get such a grand return for so trivial an outlay.

OH, DEAR! WHAT CAN THE MATTEI BE?

We have received the following registered letter:—

COUNT MATTEI'S REMEDIES,
Central Dépôt for the United Kingdom and Colonies
London, July 5, 1893.

To the Editor of HYGIENE.

DEAR SIR,—My attention has just been called to the fact that in your issue of May 13 you reprinted one of the articles in which you attacked Count Mattei.

I have now to inform you that the Electricities have been analysed by two other analysts, and that if, in the face of their analysis, you continue publishing your attacks upon what have been proved by competent medical authorities to be genuine remedial agents of a very valuable character, I shall have to hold you responsible. I enclose herewith a copy of our monthly publication for May 15, in which you will find an article dealing with the question of the analysis, to which I beg you to give careful consideration; also one for November 15, 1892.—Yours faithfully,

A. GLIDDON, Manager.

A refreshingly cool letter, certainly, with thermometers bursting around, in their futile efforts to record the high temperature that will make the present summer remembered many years after the Matteist craze has followed the example of the thermometers; but if the Matteist manager imagines that we are to be muzzled so easily, he is labouring under as great a delusion as many of his customers—some of whom talk such utter nonsense as that the Electricities will cure broken limbs and restore sight to the blind, not to mention other alleged miracles.

We have to express our thanks to Mr. Gliddon for one act of thoughtfulness on his part, namely, sending only one of the two promised numbers of *Modern Medicine*, which would be more appropriately entitled *Modern Magic*. If ever anything should be taken in homœopathic quantities, it should be Matteist literature, which might be described in the Matteist jargon as *Emetico*.

It appears from *Modern Medicine* for May 15 that the analysts referred to in Mr. Gliddon's letter are M. Casali, of Bologna, and an English chemist, Mr. Butterfield. M. Casali reports that he has carefully examined the Electricities, and submitted them to a great variety of chemical tests. "As a result of these he had come to the conclusion that the liquids had a characteristic odour which was rendered more marked by heat. This odour or aroma seemed to him to bear a slight resemblance to that of olibanum, especially to that of drops of translucent Indian incense. He felt himself justified in asserting (1) that the Electricities are not simple distilled and pure water; (2) that they have the characteristics of pharmaceutical solutions, *i.e.*, of waters charged or saturated by distillation with the volatile medicinal principles of flowers, leaves, and plants." As for Mr. Butterfield, *Modern Medicine* says:—"His conclusions agree with those of Professor Casali, so far at least as the presence of an aromatic essence in the Electricities is concerned. Like the Italian professor, the English analyst has been unable to ascertain the exact nature of this essence. He is, however, quite confident that it is a mistake to assert that the Electricities are ordinary water." Two more bald,

jejune, and unsatisfactory analytical reports we never saw, and two hundred or two thousand such inanities could not be regarded by any sensible person as affording any disproof of Mr. Stokes's analysis. Mr. Stokes's report was confirmed to the letter by the independent examination made last June by Professor Michaud, chief of the Government Laboratory at Geneva; and both of these analysts assert that Mattei's Electricities had no colour, flavour, or odour, and that the chemical composition is identical with that of water. Perhaps if it had occurred to either of them to have, say, a peppermint lozenge in his mouth when smelling the fluids, there might have been an aroma as of "translucid Indian essence." Mr. Butterfield is confident on one point only, *viz.*, that the Electricities are not ordinary water. In a sense we agree with him. Ordinary water can be obtained of any water company at 1s. per 1,000 gallons; the Electricities are sold at the rate of 5s. an ounce.

Grievously disappointed with the Matteist analysts, we turned over the pages of the Matteist monthly periodical in the vain hope of discovering the names of some of the competent medical authorities whom Mr. Gliddon holds *in terrorem* over us. We found cases of remarkable cures effected by Madame Schmid, Dr. E. P. (Topeka, Kansas, U.S.A.), Dr. C. (another Yank), Pastor Stocker (of Mingsolsheim), M. (Dunedin, New Zealand, who talks of seeing patients in his "shop"), Margaret Wilson, M. H. W. (senior curate of C.), M. de Rozehuba, X., and Baboo Radhica De (of Calcutta, who is reported to have cured an individual rejoicing in the name of Nibin Chudergaugoolychinsurah). The use of initials only would have been excusable here. It is almost needless to remark that Nibin (we will not goad our unoffending compositors to desperation by repeating the cognomen) is represented to have been "cured like miracle" of inflammation of the eyes, by the use of Mattei's Electricities, in less time than any one of our many thousands of readers could master the name in. If these ten electro-homœopathic practitioners, who occupy considerably more than half of the space of *Modern Medicine*—two women (two Americans vaguely designated "Dr.," and, with singular modesty, contrasted with their reports, indicated by initials only), two nondescripts (M. de Kozehuba and X.—certainly not Y. Z.), one foreign pastor, one English curate, one New Zealand shopkeeper, and one baboo—are to be regarded as fair samples of Mr. Gliddon's "competent medical authorities," they are even more unsatisfactory and unconvincing than his brace of analysts, and that is saying a great deal.

*ON HAY-FEVER, HAY-ASTHMA, OR
SUMMER-CATARRH.*

BY THE EDITOR.

The smell of hay is sufficient to produce catarrh and inflammation of the eyes and nose, at any season of the year, in persons suffering from a strong predisposition to hay-fever. I have known a severe attack brought on in winter, and at other periods when the affection would be unexpected, by passing near a newly-cut stack of hay, entering a stable where hay had just been placed in the racks, or unpacking cases and hampers containing musty, close-smelling hay. Within a few weeks of last Christmas-day I had under my observation two undoubted cases of hay-fever, one occurring in a lady through her unpacking some boxes of china wrapped in hay, which had been forwarded from the Continent; the other in a gentleman, an amateur farmer, who had amused himself by chopping hay into small pieces with a cutting machine, and afterwards feeding some favourite cows with the chopped hay, remaining near the racks while they were eating it.

Dr. Bostock thought that his case was not, in any degree, dependent upon the effluvia from hay, and attributed his annual attack to physical fatigue and exposure to the sun's rays.

For many years he was in the habit of retiring during the greater part of the summer season to a house situated on a cliff at Ramsgate.

There was very little grass within a considerable distance of his house, and on many of the hottest days the wind blew steadily from the south-east, so that the nearest land to the windward of his residence was the French coast, on the opposite side of the channel; yet during this time, whenever he relaxed his usual plan of discipline, viz., abstinence from bodily exercise, with avoidance of exposure to the solar rays, and placed himself for any length of time under the influence of the direct heat of the sun, or quickened the circulation by walking or any other kind of exercise, the symptoms at once recurred in full force.

There are, doubtless, many cases of a similar character to Dr. Bostock's. One such came to my knowledge soon after the publication of the first edition of my work on Hay-Fever, and as it is always interesting to have the patient's own account of his disorder, especially when he is a man of education and superior intelligence, I may give the following extracts from his letter:—

"I am twenty-nine years of age, and can recollect certainly for fifteen years being annually attacked by this malady (summer-catarrh). I have resided for the last seven years by the seaside, and my case quite agrees with that of Dr. Bostock, in the fact of its being in no way consequent or dependent upon the smell of hay, but merely on the approach of really hot weather. This year (1862) it first came on whilst I was on the sea, yachting with a friend. It was a hot day in May, with wind from the S.-W., the nearest land to windward being nine miles distant. I felt myself, after some exertion in assisting to hoist the sails, suddenly seized with sneezing, and I have had it ever since." (The date of this correspondent's letter was June 13th). "I dare take no exercise except very slow walking, or I become a most pitiable object. My eyes are inflamed to a fearful extent, the discharge from the nose is immense, the perspiration oozes from every pore of my skin, and I am often obliged to change my linen. I seldom get asthma; if I do, it does not last longer than a night or two. . . . Another peculiarity is the breaking out on my upper lip, which I attribute to the heat or virulence of the nasal discharge."

In another similar case, the patient informed me that he had suffered for many years from annually recurring attacks of summer-catarrh, which occurred about the same period (synchronously with the first great heat) of summer, no matter where he might happen to be at that season, and that some years since he was seized with unmistakable and severe symptoms on board ship, several hundred miles from land.

I may also mention another case, in which it is probable that the immediate cause was great solar heat.

Towards the end of the month of June, some years ago, a gentleman went to my publisher to purchase a copy of my book on Hay-Fever, and in the course of conversation stated that he had been a victim to hay-fever in previous years, but thought he had escaped it that season by making his residence temporarily in town. Subsequently he called to communicate the singular fact that in walking home along the streets to his house, which was situated at no great distance, he felt the symptoms of the disorder coming on, and by the time he reached home they had become so severe as to compel him to remain within the house for several days. The day on which he suffered this attack was very hot and close, and some of the streets along which he passed were very dusty. The intense heat, combined with the irritation

of the mucous membrane of the nose and throat, produced by the penetrating particles of dust, sufficiently accounted for the sudden appearance of the affection.

(To be continued.)

THE MANUFACTURE OF AERATED WATERS.

By THOMAS T. P. BRUCE WARREN.

(Concluded from page 97.)

In the previous portion of my article on this subject, I referred briefly to the claims which aerated waters have to be regarded as articles of consumption in an ordinary dietary.

A word of caution appears necessary, and I must say that I am surprised at the silence of the medical profession on certain *aerated nostrums* which are extensively consumed. So long as a manufacturer of these waters confines himself to the strict *bona fides* of his business, no one has a right to murmur, but when he steps beyond his province and issues under specially captivating names chemicals which are by no means inert, I maintain that his wares are sent out with distinctly false claims. No manufacturer will attempt to justify the indiscriminate consumption of phosphoric acid, which is now so rife in the form of phosphates, hypophosphites, &c. These compounds are manufactured as specialities by many chemists solely for mineral water makers. I am happy to say that the leading mineral water manufacturers with whom I am acquainted studiously avoid the manufacture of these objectionable beverages. It would be extremely interesting to know how many manufacturers of aerated waters are aware of the pernicious effects arising from a continued use of acid phosphates and their congeners. A word of warning should be given with unmistakable emphasis against the continued use of these beverages, unless approved of by a medical man.

Another source of complaint against a certain class of manufacturers arises from the use of those abominations which are called "fruit essences," and which, in fact, consist mainly of "ethers" of very doubtful value as articles of diet. A class of drinks largely met with now, and even recommended as specially suitable for "teetotalers and temperance parties," contains, in many cases, a "smack" of "cænanthic ether," or "brandy oil," as it is sometimes called. Is a consumer prejudiced when swallowing these liquid conundrums? We have restrictions on the publican, but why it is

that a mineral water manufacturer can sell poisonous or deleterious drugs passes my comprehension.

To return to the more congenial part of my task is more agreeable. Seltzer water, lemonade, soda water, and plain aerated water may claim a place in any well-arranged catalogue of beverages. Sherry, claret, brandy, a few well-made fruit syrups, and essence of ginger, may supplement the list according to the idiosyncrasies of the individual.

It is not my intention to deal with the technicalities of this industry, beyond those relating strictly to their wholesome character. A good natural water-supply is of the very first importance. Clean slate tanks for stowage, careful cleansing and rinsing of bottles, will demand watchful supervision; and it is equally important to have a perfectly clean and well-ventilated workshop, as far from stables, straw-sheds, open drains, &c., as possible, while solutions, materials for carbonic acid gas making, and the numerous odds and ends employed in making aerated waters, cannot have too much attention.

There is a notion in existence among some people that we have no business to pry too closely into matters relating to our food supply, and the reflection "that to-morrow we die" is, so far, a consolation to these persons. An indifference to what we eat or drink, so long as our appetites are satisfied, is, to my mind, a piece of criminal selfishness. Aerated waters properly made rank in the first class of beverages for general consumption, and hence no well-arranged table is considered complete without a supply of seltzer or aerated water, and, if served up in syphons, these form a graceful decoration to the table. Moreover, their value as aids to digestion cannot be overlooked.

The manufacture of aerated waters in the syphon form has given a marked impetus to their consumption among the upper classes. Flavoured waters, such as lemonade, are, by preference, refilled into the same syphons, for these vessels do not offer the same facilities for "washing out" as the ordinary bottle. One considerable advantage belonging to syphons is that they cannot be used for any other liquid in an ordinary way. Similarly, the round-bottom bottles, such as the usual soda water bottle, was a very awkward vessel to use as a temporary candlestick; flat-bottomed bottles have often been used for such a purpose, but complaints on this score have entirely disappeared. This is due, perhaps, to the careful examination of the empties before being washed.

I have often thought what a multitude of sins in the way of dirt and like impurities is concealed by a dark

or black bottle. It offers, at any rate, a temptation which is not pleasant to think about. Claret bottles are open to the same objection. This forces upon our attention a subject which is of paramount importance, but we can hardly hope for a reform in bottles where so much depends on the use of cheap materials. Still, it is a matter to which some attention should be directed.

The use of distilled water is no doubt a great advance in the right direction as regards this manufacture, yet we must not look upon it as a necessity, unless the natural water supply is defective. Water previously boiled, if cooled and filtered, will be practically equal to distilled water. Owing to the expulsion of free carbonic acid, earthy and metallic carbonates are removed. But even this is a refinement which is not requisite if the natural supply is of good average quality. As a rule, whatever we do in the way of removing an ingredient, whether saline or gaseous, from a water, we can hardly help creating a fresh medium of contamination, and, in most cases, more serious than the one we are removing.

If a natural water supply is bad as regards organic impurity, nothing will render it safe for use in making aerated waters. It is best to avoid it *in toto*, and if a suitable supply cannot be obtained by sinking a well, it is far better to remove the manufactory to some more favourable locality.

We may generally consider that if an ordinary water supply is normally good, it may be used for aerated waters without fear, but defective pipes have been known to be a source of contamination. Hence, every factory drawing from such supply should have a standpipe near the entrance of the factory, so as to make sure, if the water is impure, whether it is vitiated on the premises. If so, the necessary measures to amend this condition can be taken without interfering with the factory operations. Of course, if the water is vitiated on the other side of the standpipe, and we are not provided with adequate stowage, the only prudent thing to be done is to wait until the pipes are repaired. On this account it is best to have a good reserve stock of manufactured waters to fall back on.

CHURCH BELLS: A NUISANCE IN TOWNS.

A SOCIETY has been formed in New York, with branch societies in Philadelphia and other American cities, for the suppression of the intolerable annoyance created by the frequent, noisy clanging of inhar-

monious church bells. It has often been a marvel to us, finding ourselves in the vicinity of churches where the habit of bell-ringing at frequent periods prevails, how people have so long put up with the nuisance thus created in populous localities where the church bells—generally the least musical and cheerful of their kind—are tolled with doleful pertinacity, on week days and Sundays alike; and we are therefore not surprised to learn from an American correspondent that this new society has received hundreds of letters from residents in New York, Brooklyn, and Jersey City, expressing their approval of the movement which they have set on foot, and giving instances of the great disturbance of quiet and repose, with serious injury to health in the case of invalids, of persons unfortunately resident in the neighbourhood of such superfluous and discordant bell-ringing.

To Paulinus, Bishop of Nola, is commonly given the credit of first introducing bells into ecclesiastical use about the year 400; and we find it mentioned in ancient French history, upon monkish authority, that in the year 610, the Bishop of Orleans, being at Sens, then in a state of siege, actually frightened away the besieging army by causing the bells of St. Stephen's Church to be rung, a circumstance which may be accepted as a proof, both that church bells were rare in those days, and that although the besiegers were styled "barbarian," they had a keen, natural sense of the distinction between discord and music.

But the disposal of a besieging force was nothing as compared with the virtues claimed for church bells in former times. According to Dr. Fuller, they sometimes bore the following motto:—

"Men's death I tell with doleful knell,
Lightning and thunder I break asunder,
On Sabbath all to church I call,
The sleepy head I raise from bed,
The winds so fierce I do disperse,
Men's cruel rage I do assuage."

In his quaint way, Fuller makes these comments:

"Bells are no effectual charm against lightning. The frequent firing of abbey churches by lightning, confuteth this proud motto. Abbey steeple, though quilted with bells almost *cap-à-pie*, were not proof against the sword of God's lightning. Yea, generally, when the heavens in tempest did strike fire, the steeples of abbeys proved often their timber, whose frequent burnings portended their final destruction." In our matter-of-fact days, when "the heavens in tempests strike fire," the lightning conductor, and not bell-ringing, is regarded as the best safeguard.

Even his satanic majesty the devil was at one time supposed to be under the control of the church bells, which were baptised* and anointed with the chrism or holy oil, and afterwards exorcised and blessed by the bishop, from the belief that when these religious ceremonies had been performed the bells would have power to calm tempests, keep off plague and pestilence, and drive away the devil and his host of demons and mps.

The origin of tolling the "passing bell" during the dying moments of a sick person was to drive away the invisible evil spirits supposed to be standing about the foot of the bed, near the door, or hovering in the air, wickedly intent on capturing the soul of the deceased as it wended its way heavenwards. So great was the belief in the efficacy of this precaution, that it was usual to charge a specially high price for tolling the largest bell in the church, because that, being the loudest, would compel the evil spirits to get further away, so as to be clear of the sound. Now, the so-called "passing bell" is not rung till after the sick man's death; but much superstition prevails on this subject in many rural districts, and we well remember the dire offence which we gave years ago to the inhabitants of a small country town in the Midlands, through our paying the village sexton *not* to toll the church bell after the death of a near and dear relative, our object being to avoid harrowing the feelings of survivors by the dismal sound.

Other uses to which church bells were, and in some localities still are, put during the week-time may be regarded as of public utility. At the town of Southam, in Warwickshire, for instance, a bell is rung at the hours of 1 p.m. and 8 p.m. (the latter, doubtless, being the survival of the curfew bell, and consequently a custom eight hundred years old), both denoting important periods of the day in a rural community, and particularly useful in times when clocks were few and Waterbury watches unknown.

A chief use to which church bells are now put is to summon the worshippers to service; and this brings us back to the remarks at the commencement of this short article. When bells are fairly melodious, as old church bells are wont to be, when the adjacent locality is not densely populated, and when the ringing is neither frequent nor unduly prolonged, little room exists for objection; but when these conditions are reversed, especially upon week-days, then not only does the ringing fail to assuage men's cruel rage, as

* A custom still observed in Roman Catholic countries, where it is the practice to give some saint's name to the bells.

the verse we have quoted says, but it constitutes a constant source of annoyance to everyone within earshot, while it seriously affects all who are in bad health, and who, therefore, stand in need of quiet and rest. It cannot be reasonably argued by those who encourage the practice of frequent and lengthy tolling of church bells that it is necessary or useful, though, possibly, it may (as has been suggested)² act as an advertisement for those persons pharisaically disposed. Nonconformist congregations contrive to meet for the performance of their religious services without the aid of bell-ringing; and churchmen or churchwomen would probably be greatly surprised at, and almost doubt the sanity of any person who should suggest to them the necessity of a special reminder to keep any secular appointment, whether for business or pleasure. Surely, then, they might manage to attend a religious service without the noisy tolling of bells for full half an hour previously.

NEWS AND NOTES.

The Dietary of an Italian Peasant is composed of black bread, beans, cabbages, onions, and wild herbs, with a small quantity of inferior oil, fruit, and macaroni. Tea, sugar, and other similar commodities, which have become daily household necessities amongst the poorest of the working classes in England, are almost unknown to the Italian field-worker.

* *

Sewage Disposal at Carshalton.—The Carshalton Local Board are promoting a bill in Parliament to confirm a provisional order of the Local Government Board empowering the Local Board to borrow £25,000, and to acquire fifty acres of land between Carshalton and Mitcham for sewage disposal purposes. The cesspool system is at present in operation in the district, and numerous complaints have been raised as to the condition of the effluent which flows into the Wandle, a tributary of the Thames. The Local Board's project is opposed by landowners and residents in the vicinity of the proposed works on the grounds that the site is not in the most eligible position, and that the works would prove offensive.

* *

Butter.—The importation of butter from Denmark into the United Kingdom has increased nearly threefold in the past ten years, namely, from 304,000 cwt. to 876,000 cwt., while the imports of butter from Sweden have increased in a still greater ratio in the corresponding period—from 67,000 cwt. to 234,000 cwt.

* *

The Power of Physical Endurance upon Vegetarian Diet has been satisfactorily tested in a long-distance walk from Berlin to Vienna. The first two competitors to arrive at

the latter city were an engineer and a printer, neither of whom took any other than vegetarian food during the long and exhausting journey.

* *

The Registrar-General's Returns for last week show the following average annual death-rate per 1,000, as based on the deaths registered during the week, in thirty-two great towns of England and Wales. Preston heads the list with the terribly high rate of 42.1, next Liverpool 34.9, Manchester 32.2, Leicester 32.1, and Bolton 32; under 30 per 1,000 and above 20, are Swansea 28.3 per 1,000, its neighbour, Cardiff, 28.2, Wolverhampton 28.1, Birkenhead 27.1, Blackburn 26.9, Birmingham 26.2, Sheffield 26.2, Salford 26.1, Newcastle-on-Tyne 25.7, Bradford 24.9, West Ham 22.9, London 22.4, Sunderland 22, Leeds 21.6, and Gateshead 20.1; occupying an enviable position below an annual average rate of 20 deaths per 1,000 are Brighton 19.9, Portsmouth 19, Bristol 18.1, Burnley 17.3, Halifax 17, Croydon 16.7, Nottingham 16.5, Plymouth 15, Huddersfield 15, Norwich 13.5, Derby 11.8, and Oldham 11.8. Some of the last-named group seldom find themselves showing such a favourable condition, but it is to be hoped that they will continue to do so. The average annual rate for the whole number, as estimated on last week's returns, is 23.8 per 1,000, on an aggregate population considerably exceeding ten million persons.

ANSWERS TO CORRESPONDENTS.

Dr. Mapleton (St. Kitt's, West Indies).—We are not acquainted with the composition of *mist. agrimonie co.* Perhaps some of our numerous Scotch readers, seeing this reference to it, may give us the information you require.

Snake-Bite.—There is as much difference between a viper and a common, harmless English snake as there is between chalk and cheese. Consult any Natural History; or, better still, look at the specimens in the museum at your county town when you next visit that place. The administration of ammonia and the maintenance of artificial respiration are among the best means of treating the collapse brought on by venomous snake-bites.

W. Moore.—Your idea is a very good one.

Mr. Brien.—The number of *HYGIENE* for May 13 commenced a new yearly volume (Vol. VII.). You can get all the numbers (eight) issued since that date direct from our publishers, or through any bookseller or newsagent.

Civil Engineer.—The late Dr. Alfred Carpenter, of Croydon.

A Sanitarian.—You can get the *Public Health* (London) Act at Eyre and Spottiswoode's, West Harding-street, E.C.

Mr. Kennedy.—The importance of sanitary legislation was recognised at an early period of English history. In the reign of Richard II. a law was passed imposing a penalty upon any persons found guilty of throwing garbage or refuse into water-courses or streets; and in

the time of Henry VIII. it was enacted that all cattle should be slaughtered outside the boundaries of populous places.

B. H.—The work you refer to on "Impediments of Speech" (12th edition) is published by Beaumont and Co., 39, Southampton-street, Strand, W.C.; price 2s.

A Would-be Centenarian.—If you desire to prolong your existence to 100 years you will have to make every possible effort. We knew a gentleman who tried hard for 98½ years, and then failed to accomplish his object. An article on Longevity will shortly appear in our columns.

Mr. J. H. Walker.—Consult "Medical Hygiene," by the late Dr. Parkes.

G. Franks.—The Parliamentary Secretary to the Local Government Board is Sir Walter Foster, M.P. for Ilkeston—the right man in the right place, and one of Mr. Gladstone's best appointments.

M. O. H.—You should apply to Messrs. Hughes and Lancaster, civil engineers, of Great George-street, for information concerning the expense of the Shone system of sewage disposal.

A Subscriber.—Report received.

Incredulous.—Unfortunately, the law is as you say in your letter. Read the article "Shall we Lock up the Drink or the Drunkard?" by an M.P., published in *HYGIENE* of June 23.

J. H.—Your copy was delayed owing to the great trade demand for *HYGIENE* and the necessity of printing another edition.

Mr. Van Reseema (Rotterdam).—Thanks for your kind letter.

EDITORIAL AND PUBLISHING NOTICES.

EDITORIAL.—The Editor begs to express his thanks to numerous correspondents, and to state that he will be pleased to receive any articles or correspondence coming within the scope of *HYGIENE*, reports of medical officers of health, items of general or local sanitary interest, newspapers (marked at the part to which it is desired to draw attention), &c.

PUBLISHING.—The terms of subscription not having been raised, although under the new arrangement fifty-two numbers instead of twelve will be sent out annually, all subscriptions now running will continue good for the original period.

HYGIENE will be forwarded, post free, to all parts of the Kingdom, and to all countries within the Postal Union (including the United States, Canada, France, Germany, Belgium, Italy, Austria, Hungary, Spain, Portugal, Switzerland, the Netherlands, Russia, Denmark, Sweden, and Norway), on the following prepaid terms:—Twelve months, 6s. 6d.; six months, 3s. 6d. Subscription terms for Australia, India, the Cape, and all other parts of the world can be ascertained by inquiry at *HYGIENE* office.

ADVERTISERS are requested to bear in mind the greatly increased circulation of *HYGIENE*, with its weekly issue and reduced price. In addition to the large, regular circulation, many thousands of copies are distributed annually to sanitary officials, medical men, private addresses, public libraries, clubs, hotels, &c.

HYGIENE,

A SANITARY AND SOCIAL MAGAZINE.

VOL. VII.]

FRIDAY, JULY 21, 1893.

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CHOLERA: ITS CAUSATION AND PREVENTION.*

By SIR SPENCER WELLS, BART., F.R.C.S., &c.

(Concluded from page 119.)

IN the Official Consular Reports from Brazil for 1883 a summary is given of the investigations concerning yellow fever by Dr. Domingos Freire. He records a number of experiments which he considers establish the parasitic nature of yellow fever, and prove that the parasite is an amarillus microbe, a cryptococcus classified among the algæ, which is always found in every case of true yellow fever. Dr. Freire terms it *cryptococcus zanthogenicus*. He showed experimentally that the parasite "resides in the blood, and therefore in all the organs the blood traverses;" and that "yellow fever is propagated by contagion from individual to individual, that it is primitively a contagious disease, but may become infectious as soon as a sufficient number of foci accumulate." He discovered that the colour of the black vomit is not due to altered blood, but to an alkaloid or extractive produced by excretion or changes in the microbes. By cultivating the cryptococcus on gelatine within a Pasteur globe he was enabled to obtain an artificial black vomit. And from the earth surrounding the body of a man who died of yellow fever, and was buried a year before, he was also able to obtain and cultivate the cryptococcus, and produce artificial black

vomit. "Another experiment was made with the same earth. A guinea-pig, whose blood examination showed was in a pure state, was shut up in a confined place in which was placed earth taken from that grave. In five days the animal was dead, and its blood proved to be literally crammed with the cryptococcus in various stages of evolution. The urine was albuminous, and the brain and intestines were yellow with the peculiar pigment of the cryptococcus." In view of such facts, asks Dr. Friere, "how can it now be said that the germs of yellow fever disappear with the burial of the corpse? On the contrary, the cemeteries are perennial foci of contamination, above all as regards the epidemic diseases whose parasitical nature is now accepted in Science."

All this has been forcibly stated by Dr. (now Sir Charles) Cameron in his admirable article published in the *Scottish Review* of July, 1887. entitled "The Modern Cremation Movement." And Sir Charles Cameron adds: "Dr. Friere's observations, verified in all their details by his assistants, showed that the germs of yellow fever perpetuate themselves in the cemeteries, which are like so many nurseries for the preparation of new germs destined to devastate our city. Through the pores of the earth these germs spread into the atmosphere; others are carried by the torrential rains so frequent among us to the streets and squares, and finding there means adequate for their evolution, give rise to the eruption of epidemics in the summer, which is the most proper season for their sporulation." As a temporary provision Dr. Friere recommends that the cemeteries should be removed to a distance from populous places.

* Through an oversight, it was not stated in our last number that this article was continued from the previous one (July 7), in which it was commenced.

As a definite and radical measure, he continues: "The practice of cremating the bodies would suit completely, and it would be the surest means of extinguishing the epidemics which every year ravage, with greater or less intensity, our most flourishing centres of population. If each corpse," he adds, "is the bearer of millions of organisms that are specifics of ill, imagine what a cemetery must be in which new foci are forming around each body. Imagination is incapable of conceiving the literally infinite number of microbes that multiply in these nests. In the silence of death these worlds of organisms, invisible to the unassisted eye, are labouring incessantly and unperceived to fill more graves with more bodies destined for their food, and for the fatal perpetuation of their species.'"

It is vain to hope for the abolition of cholera if its *bacilli* are still to be preserved by burying in the earth the bodies of the victims. The dead bodies of cholera patients are not merely dead organic matter. All dead bodies, whatever may have been the cause of death, contain myriads of living organisms. As soon as life ceases, these organisms assist in the process of decomposition, form poisonous products, and may excite disease if brought by air or water into contact with living beings. But what is much more important is the fact that, in a proportion of little less than twenty per cent., the bodies buried in the usual way in the earth contain, in addition to the ordinary agents of decomposition and putrefaction, the germs of zymotic diseases.

The seeds of yellow fever, smallpox, typhoid, cholera, are germs of pestilence almost imperishable in the earth, ready after many years of latency to revivify and recommence their infective activity. Any mode of burying the dead in the earth, with or without a coffin, exposes the living to unnecessary danger. Anything short of complete destruction by fire or by some powerful chemical agent must be powerless or incomplete as a safeguard. We segregate our living smallpox patients and make it a misdemeanour to expose them publicly. We treat cholera patients in a similar way, and adopt quarantine restrictions to protect the healthy from infection; but when they are dead we dispose of their bodies in the very way most likely to preserve and multiply the disease germs which they contain, and so assist in their future mischief-working.

The work of Pasteur, done mostly within the last thirty years, in determining the bacterial origin of many diseases, in attenuating the virus, and in proving the mitigating and protective effect of inoculating with it thus attenuated, has led us a certain way in the direction of protection. But protection is not prevention, and it is

prevention that must be the object of future efforts. Who shall say that it is impossible? Bacterial organisms, like all others, must have living, feeding, and breeding places. Take away their means of existence and they will die out, as have done the mammoth and the dodo. If vaccination were universal and there were no more unprotected subjects in which to settle, what would become of smallpox microbes, starved and turned out of house and home? What would become of cholera *vibrios* if they could be kept out of water?

Just now a disease, as fatal as many of the most prevalent of zymotic diseases put together, is either to be added to the number, or classed with them as the result of the action of a living organism, and therefore to be guarded against by attenuated inoculation or treated by germicidal remedies. We have not yet advanced far in this direction; but although Koch's work is still incomplete, there is good reason to believe that before many years have passed we shall be able to speak of pulmonary consumption as one of our vanquished enemies, and glory in another triumph of experimental physiology and of comparative pathology over a disease which is still fearfully destructive of human life and the cause of untold suffering and misery.

In the Botanic Garden of Lyons flower-pots were filled with earth on June 16, 1891, and some earth-worms were added in each pot, with some of the *sputa* of tuberculosis patients, and fragments of lung from their dead bodies. A month afterwards it was found that the earth-worms contained tubercle *bacilli* in large numbers, and that guinea-pigs inoculated with them soon died with general tuberculosis. Whatever the *bacilli* may be, whether tubercular, typhoid, or choleraic, in bodies buried in the earth, it is incontestable that the earth-worms, everywhere so numerous and active, may preserve the *bacilli* in their bodies during many months, still living and losing none of their virulent properties and power of rapid germination or reproduction. These are the grounds on which we assert that bodies after death from cholera, from consumption, and from any infective disease ought to be cremated, not buried. Perhaps the time is not very far distant when the revival of the ancient custom will not be limited to deaths from specific diseases, but will become universal.

If we are ever to abolish cholera we must do all that is possible, collectively and individually, to raise the standard of national health. Next, we have to protect the people from the seeds of infective diseases. We must intercept the transit of diseased travellers, not by unnecessary and vexatious quarantine restrictions, nor interference with commercial and social intercourse

between healthy places ; but we must insist on careful inspection of all arrivals from infected ports. The case of the family or the individual must be left to the family doctor. But the lessons which the cholera of 1892 should teach everyone are that a supply of pure drinking-water must be obtained, and that (when this is impossible) impure water must be boiled ; and that when anyone dies the body must be cremated, not buried in the earth.

CHLORIDES AND NITRATES IN DRINKING WATERS: THEIR SANITARY SIGNIFICANCE.

By J. W. GATEHOUSE, F.I.C., Public Analyst for Wiltshire, Bath, &c.

As the whole subject of water analysis is a very wide and intricate one, I shall confine these remarks to two points of a practical character, which will readily enable anyone by simple tests to determine as to the probable purity or impurity of a given sample of drinking water.

The solvent power of water is so great that absolutely pure water does not exist in nature. Rain water, collected near the surface of wide moors, contains some dissolved gaseous and solid impurities, washed out from the atmosphere, though, of course, to a very slight extent ; but immediately the rain touches the soil it dissolves any soluble substances it may come in contact with, and thus, in the substances contained in spring waters, we have a history, as it were, of the course of the water from the clouds to the spring.

The primary rocks, such as granite, are but little affected by the rain, so that waters collected in parts of Wales, Cumberland, and Cornwall contain as small a quantity as from two to five grains of solid matter per gallon, whilst samples taken from the carbonate of lime districts contain from twenty to thirty grains per gallon, even when quite uncontaminated with substances injurious to health. But in all these cases where the water is uncontaminated with sewage, or its equivalent decomposing nitrogenous matters, the chlorine, as chlorides, and the nitric acid, as nitrates, will be found to be not more than from one to one and a half grain per gallon, and even in waters of second class quality these amounts do not exceed two grains per gallon. As a general rule it will be found that where the chlorine is over two grains per gallon, the nitric acid will also be higher than the average.

It will be noticed that I speak of nitric acid rather than of the nitrogen contained in the nitrates ; the reason of this being, as will presently be shown, that anyone can determine for himself, by a very simple method, the

presence or absence of nitric acid, and, therefore, of nitrates, although he cannot determine its amount, as this latter operation can be performed only by a skilled analyst. Should anyone wish to translate the amount of nitrogen, as given in a water analysis, into nitric acid he has only to multiply that amount by $4\frac{1}{2}$; of course, dividing the amount of nitric acid by the same figures will give the nitrogen.

In impure waters the amounts of chlorine and nitric acid will be found, as a rule, enormously higher than the average. In cases which have come within my own observation during the past six months the chlorine ranged from 2.8 to 10.5, and the nitric acid from 4 to 28 grains per gallon.

Whence, then, do these excessively large proportions of chlorides and nitrates arise, for it must be remembered that to a given amount of chlorine or nitric acid must be added at least 40 per cent. in order to arrive at the actual amount of chlorides or nitrates in the water ?

Leaky drains and percolation from cesspools must be held accountable for a large proportion of this contamination, and the remainder, especially in country districts, is traceable directly to the enforced dirty habits of the people, who, owing to incomplete sanitary arrangements, are compelled to throw their slops and refuse on scraps of garden ground, most frequently in proximity to the well, or in such positions that the decomposing matters naturally gravitate into the well. This they will do, under favouring circumstances, from a distance of fifty yards and more.

A special example of this fact has lately come under my own notice. The water taken from a certain well in a country district was condemned by me, in June last, as contaminated with sewage. The chlorine was 2.8 and the nitric acid 4.2 grains per gallon. The owner of the well thought it impossible that any source of contamination could possibly exist, but on careful examination, about fifty yards from the well there was discovered a cesspool which had, by accident, overflowed, instead of passing its contents into the proper channel. An alteration of the drainage provided a remedy ; and an analysis of the water from the same well, in October, showed chlorine 0.98 and nitric acid 0.175 grains per gallon, whilst the total solids had diminished from 60.8 grains to 28.8. In this case the mischief was happily remedied by prompt action, as the overflow was of very recent date ; but where the ground has become saturated with decomposing organic matters, no amount of pumping or cleaning will remedy the evil or remove the contamination, and the only safe course to adopt is to close the well.

It has been proved by direct experiment that, like many

diseases, nitrates, when derived from decomposing organic matters, owe their existence to the presence of a minute microbe, without which the nitrogenous matters are converted into ammonia and similar compounds; but it requires the presence of this minute fungus to cause the decaying nitrogenous matters to absorb oxygen from the atmosphere, and thus produce nitrates. A familiar illustration of the action thus resulting from the absorption of oxygen occurs in yeast, which, from similar absorption during its growth, produces carbonic acid and alcohol. It has been suggested by some persons that the oxidation of these organic matters into nitrates is a proof that they are thereby rendered innocuous; but that this cannot be the case is shown by the very conditions under which they are formed, for the disease-producing microbes, so prejudicial to health, are no more destroyed by oxidation* than are the microbes which produce the oxidation and conversion of the nitrogenous organic matter into nitrates. These disease-producing microbes evidently flourish under such conditions, and the others are certainly not destroyed, but remain with the products of oxidation to contaminate the water into which they enter, and thus give rise to epidemic disorders.

The detection of chlorides is very easy. Make a solution of nitrate of silver (lunar caustic), containing twenty grains per ounce, together with a few drops of pure nitric acid; if the water contains much chlorides, the addition of this solution to a glassful of it will make the fluid so turbid that it will become almost opaque, while it will render it only translucent if the amount of chlorides is small. The addition of the nitric acid to the nitrate of silver solution is necessary because, otherwise, not only chlorides, but many other substances, might possibly cause the turbid appearance just mentioned.

The nitrates may be readily detected by the aid of a somewhat uncommon, though not expensive, material called diphenylamine. To use this, dissolve a little in pure strong sulphuric acid, and to a drachm of this solution add half a drachm of water to be tested. Any nitrates will turn the mixture quite blue, the tint varying to some extent with the amount of nitrates present. Should diphenylamine not be readily obtainable, a very fair substitute can be found in carbolic acid, which, however, produces a purplish tint, and not a blue colour, as is the case when diphenylamine is the test-agent employed.

The analyst frequently uses a test for nitrates whereby the contamination is not only made evident to the eye,

but becomes patent to the olfactory nerves. By shaking an impure water residue with mercury and sulphuric acid a gas is obtained whose volume is not only an indicator of the amount of impurity, but which, on coming in contact with the air, at once shows by its colour and odour that there must be something very seriously the matter with a water capable of producing such disagreeable results. Could such an experiment be performed upon a badly contaminated specimen in a court of justice, no bench of magistrates would have the slightest hesitation in ordering the instant closure of the well from which it was derived.

AN AGE OF STIMULANTS, No. 2.*

By J. MURRAY GIBBES, M.D., C.M.,
Mooroopna, Victoria, Australia.

TAKE away indigestion and its complications from the list of diseases medical men have to treat, and a good many doctors would have to pay much less than they now do in income tax. The question naturally arises, why do we all suffer from this complaint, and what causes it? The Rev. John Wesley, a hundred years ago, said that indigestion was unknown in England until the introduction of tea, and whilst not taking that great divine as an absolute authority on the subject, we may still attach a certain weight to his statement.

Indigestion means that inconvenience we experience when our food does not digest as quickly as it should. The various internal organs of our body act, when we are in health, without our knowledge or control, but when these organs get out of gear we become painfully conscious of the fact. Digestion is the action of certain minute bodies, called ferments, on the food we eat. They are very long-suffering, but their patience has limits, and when those limits are passed we become aware of their existence, and of their ceasing to work properly. What causes them to act improperly? Wrong food-habits, undoubtedly.

The beverages we take with our food act in a double capacity, first as delayers of the digestive process, and secondly as stimulants to the nervous system. Nature dictates their necessity, owing to their action on digestion, and man mostly takes them because of their acting as stimulants to his nervous system. But Nature's laws are stronger than man's inclinations, for we find whole nations taking their beverages in an

* The bacilli of diphtheria and of tuberculosis flourish in parts of the body specially surrounded by oxygen, namely, the top of the throat and of the lungs.

* The first article of this series appeared in *HYGIENE* for June 30.

unpleasant form rather than in a pleasant one, owing to the former being necessary to their food-habits.

This is the case with wine, for it is drunk very acid by most European nations, instead of in a sweet or more agreeable form, wine being necessary as a food-digestive retarder; and the same is the case with beer and cider. The concentrated and highly nourishing food we take at the present time compels us to take increased quantities of food-digestion delayers, and these weaken the action of the food ferments; consequently, they do not act as they should, and hence indigestion is so prevalent. The increased quantity of meat eaten is in consequence of the demand for brain food, and this increase of meat causes the increased quantity of food-digestion delayers.

In examining the food customs of the nations of Europe we can divide these countries into three classes, as regards their consumption of non-alcoholic beverages. Commencing with the south, we find Spain and Italy large consumers of cocoa and chocolate; coffee is largely drunk in Holland, Belgium, Germany, and France; whilst Great Britain, Russia, and Holland are large consumers of tea, the Russians adding a slice of lemon to their tea to increase its acidity. If we take the meat-eating habits of these nations, we shall find that the cocoa drinkers consume very little, the coffee drinkers more, and the tea drinkers the most—I am, of course, speaking only of these beverages when taken in connection with food. This enables us to divide non-alcoholic beverages into three classes as to their effect as food-digestion delayers. Tea is the strongest; then comes coffee; whilst cocoa must rank as the mildest.

In the East we find coffee much drunk by nations who are small meat eaters, and they are also large consumers of tobacco, which is a powerful food retarder. Some nations do not take food delayers in any form, like the Pampas Indians, but they seem not to require them, owing to the enormous fatigue they undergo in their wanderings on horseback. Australian colonists do not take kindly to coffee, as a rule; it disagrees with a large number of them. They consume very large quantities of meat, it being seldom absent from any of their meals; therefore they are very large tea drinkers. The average consumption of tea per head per annum in Great Britain is 4·7 pounds, whilst that of Australians is 7·96 pounds. Western Australia headed the list with 12·86 pounds. One reason of this large consumption has been stated to be that in the early days the Australian colonists could not get pure water; but this cannot be the true one, for the New

Zealand colonists consume 7·28 pounds per head, and pure water is plentiful enough there, every mile or two, in its many rivers. The true reason is that, being large consumers of meat, they require the strongest food retarders; and that this is the case is proved by the fact that whereas English pale ale contains 40 grains of acid to the pint, and English strong ale 54 grains, colonial ale contains on an average 191 grains to the pint. English ale is not popular in the colonies for this reason; consequently, malt is not used so much in the colonial ales as glucose, it having apparently a larger acid-producing property. It would be much better were colonials to imitate the Russian practice with tea, by adding a slice of lemon to a decoction of pure malt and hops, instead of drinking the chemical compound they now do, and they would suffer less from biliousness.

Taking alcoholic drinks, we find wine largely drunk in the warmer parts of Europe and beer in the cooler parts, the meat-eating habits of the inhabitants having undoubtedly much to do with this food custom. The national character is much influenced by the national drink. Beer develops the lower animal qualities, the selfish, argumentative, quarrelsome disposition, whilst wine develops the joyous qualities. The wine-drinking Frenchman or Italian is quite a different being to the beer-drinking Englishman, German, or Dutchman.

As the tannic acid in tea and coffee answers the same purpose as the lactic and other vegetable acids in malt liquors and wine on our digestive organs, so the thein or caffein in tea, coffee, and cocoa has a corresponding action with alcohol on the nervous system. But whilst alcohol acts on the animal nervous system, thein acts on the higher or intellectual system as well as on the nerves controlling digestion, and both are stimulants and sedatives; whilst the effects of the former are quickly evidenced, those of the latter are more subtle. To unduly excite the nervous system continuously must result in exhausting that system, more especially if it is not naturally strong; a counterbalancing nervous depression results, constantly deadening the action of the food ferments, and permanently impairing their action. If therefore the nerves which control the digestive function are continually over-excited as in tea tippling, whilst at the same time the digestive ferments are having their activity deadened, is it to be wondered at that the whole function of digestion becomes impaired, and that indigestion is the result?

The question as to whether dyspepsia is increasing

amongst us is answered by simply glancing at the newspapers and reading the numerous advertisements of the quack medicines which the Editor of *HYGIENE* is so courageously exposing. Everyone tries to get rid of an effect whilst entirely neglecting the cause.

Non-alcoholic food-beverages may not cause us to break the written and unwritten laws of society, yet it is a grave matter of doubt whether they should not come under the same degree of condemnation as alcoholics being equally wrong. The alcoholic beverages certainly fill our gaols, but there is no doubt in my mind that the non-alcoholic ones have a great deal to do with filling our lunatic asylums, besides causing vast misery and expense in various ways. Although they may have this effect, they have proved of infinite advantage in their power of developing the human intellect. That they have had this effect we must admit, or else we could not understand why the human race has made such rapid advances during the last half century. It may be said that the spread of education has done this; but what has caused this eagerness for education? The craving for education is the result of the brain-development, for education without it would be useless. The desire for more brain food, such as meat, is another result arising from the same cause. The brain, being thus rapidly developed, renders the nervous system more sensitive, and as a consequence nervous diseases become more prevalent.

(To be continued.)

*LONDON GOVERNMENT: AS IT IS AND AS IT SHOULD BE.**

By HARRY WILKINS, Barrister-at-Law, Vestry Clerk of St. James's, Westminster.

(Continued from page 122.)

BEFORE passing to the second part of my remarks, let me give a few figures to emphasise the magnitude of the matter at issue.

Mr. Fowler's recent return on Local Taxation shows that the expenditure by metropolitan authorities, including the Commissioners of Police and the Corporation of London, has increased from $8\frac{1}{4}$ million pounds in 1868 to $10\frac{1}{2}$ millions in 1891, or to the additional amount of $2\frac{1}{4}$ millions. If loan expenditure is included, the total in 1891 is 12 millions, and the increase $3\frac{3}{4}$ millions. Omitting the Corporation of London, the bulk at least of which is not rate-expenditure, and the cost of the Metropolitan Police, which is defrayed by the ratepayers either in the form of a direct rate or a charge upon the share

of the Exchequer contribution allocated to the metropolis, we find that a total sum was raised in rates by local bodies in London amounting to nearly 8 million pounds in 1890-91, as against rather less than $3\frac{3}{4}$ millions in 1868. In other words, rather more than twice as much was levied in rates in 1890-91 as in 1868. The present debt of all the local authorities of London is about £41,000,000. The figures for 1868 are not given in the return.

The ratable value in London rose from 17 millions in 1868 to $31\frac{1}{2}$ millions in 1890-91, and now amounts to about £7 10s. per head of the population, while the debt is nearly £10 per head. Large as these totals are, a debt of less than one and a half year's ratable value is not altogether unsatisfactory, especially as part of the debt is represented by freehold sites and buildings for various purposes.

The increase in both the rates and debt of London is also partly accounted for by the creation of new bodies and the addition of new duties to old boards. The Asylums Board, established in 1867, and the School Board in 1870, together represent a fair proportion of this increase, while the freeing of the toll bridges by the Metropolitan Board of Works under the Act of 1869 accounts for a further portion.

There are, however, other reasons for the increase in the rates which should not be overlooked. I mean a growing tendency for the community to look to the Local Authority to do what formerly fell upon individuals, and a higher standard of living, owing to a wider diffusion of wealth. Both these causes are natural enough in their origin, but I am not sure that the somewhat rapid development of municipal socialism in late years is an unmixed good. It is apt to enervate the individual, and to create a form of local government, nominally local and representative, but really bureaucratic.

But a still greater evil is the increasing tendency of electors to abstain from voting at local elections, resulting in part, I am afraid, from the habit of looking to the powers that be to do all that is needful from the cradle to the grave. In the district with which I am most familiar just under 40 per cent. of electors vote in a contested election of vestrymen, a little more than 30 per cent. in an election of guardians, less than 30 per cent. for the County Council, and about 28 per cent. for the School Board. This is not satisfactory, and it is rather curious that the body which comes in for most of the kicks and least of the praise, and is often referred to by ill-informed politicians as an unrepresentative body, attracts more electors than any of the other local bodies.

Now a representative body is exactly what the electors

make it. A constitution may be excellent in theory, but in unworthy hands its very excellences may work grievous wrong.

Premising, then, that any real reform, or even any alteration of importance, depends at least as much upon the action of the individual voter as upon the proper constitution of a representative body, let us as briefly as possible consider in what points reform in the present system of local government in London is desirable. I must, however, attach another condition to the consideration of suggested reforms. I do not propose to sketch any ideal system of government as if the field were open, but rather to suggest how we can make the best of the existing condition of things.

I should have preferred to have seen the ancient county boundaries continued instead of a new county having been carved out and named London. I would rather think of London as a city than a county, and should like to see London divided into a series of municipal bodies welded together by an indirectly elected municipal council, comprising representatives of all the district municipal corporations, with authority to deal with matters of common concern. But as the County of London has been created, and the County Council has, to use an American expression, "come to stay," I suppose we must reconcile ourselves to the idea of London as a county rather than London as a city.

Let me, then, make a few suggestions for reform, taking things as they are, it being clearly understood that throughout these remarks I claim to express my own mind alone, freely and unfettered by my official position.

Firstly, then, I would relieve the County Council of as much of its detail administrative work as possible. I think the Council are making a mistake in adding year by year to labour of this description. The Council will not only lose in dignity, but, what is much more serious, the machine is likely to break down. The duties of the Council are, in fact, already too many and too diverse for it to be possible for every member to have a complete oversight of its work; consequently much of the Council's work is done by Committees away from the eye not only of the public, but of the Council itself. To say the least, this is fraught with much danger, and I hope I shall not be misunderstood if I add, contains all the elements of corruption. I speak not of persons but of the system, for the integrity of the Council as yet is beyond suspicion, and, however much one may differ as to methods, no thinking man can fail to sympathise with the desire of the Council to elevate the common lot, and no one can deny the unremitting, unselfish devotion to duty of

most of its members. An unpleasant doubt, however, forces itself upon one whether, when the charm of novelty has passed away, the Council will continue to attract the services exclusively of men of sufficient integrity and force of character to withstand the temptations offered by a system of government by committee, perhaps by one leading mind, in private. The danger is real, and should be faced before the mischief is actually upon us. Therefore I say, so relieve the County Council of mere detail routine administrative duties as to enable every member to be able to intelligently compass and grapple with its work as a whole.

Why should not, for instance, the care of the lunatics and the administration of industrial schools be transferred to the Asylums Board, who are already charged with the oversight of imbeciles and training ships? The Asylums Board is not a directly elected body, it is true; but I am a heretic to the principle of direct election to this extent, that I think a select body of qualified electors are more likely to make a wise choice than a body of electors who vote according to the wirepulling of political or party organisations, without any knowledge of the fitness of the candidates for whom they vote. A man dubs himself a "Progressive" or a "Moderate"—both most meaningless phrases—and forthwith receives the support of a solid body of voters, although he may be utterly unfit for the work of administration. The County Council is too frequently looked upon as a legislative assembly. It is, in fact, purely administrative. There is no parity between a legislative body with a Cabinet and permanent civil service, and an administrative body. In the first case, all opinions, even those of cranks and fanatics, should be represented; in the second, such are out of place, and should give way to business capacity.

It is hopeless, I suppose, to expect the County Council to be superseded by an indirectly elected body, at any rate until by overweight of work or the corruption which is possible when the present councillors are followed by a race of men who—again to borrow from America—"have their own axe to grind," the present system has proved faulty. But is it too much to ask that candidates for election on the County Council should first prove their administrative capacity by a short period of service on one of the local boards? I am confident that an apprenticeship of this kind would be beneficial to the Council, to the local boards, and to those who should be considered first, but are usually forgotten except on the eve of an election—I mean the people at large. At present it is not an uncommon thing to find a candidate coolly recommending himself to the electors on the ground that he has had absolutely no connection

with local government of any kind. I ask, in all seriousness, how can such a man fairly and well serve his constituents until he has learned the duties and powers of the body to which he is elected, and is he likely to gain experience readily if he comes fresh and green to the work of public administration?

Then, again, the appointment of judicial officers by a popularly elected body is open to objection. All such appointments should be made by the Crown, and I would, therefore, relieve the Council of the duty of appointing the Chairman of Sessions, and of all work relating to the administration of justice. In the term "judicial officers" I do not include coroners.

Secondly, the Asylums Board should be wholly elective instead of partly nominative. The nominated members of this board should be replaced by representatives of the Local Sanitary Authorities throughout London. This board, under the system of notification of infectious diseases now in force, has a ready means of tracking the course of an epidemic. It should, therefore, cease to be what it was wholly once, a Poor Law body, and be constituted the Central Sanitary Authority for London. This suggested change would further relieve the County Council of detail work. As regards the case of the young, the Asylums Board might take over the training ships and the industrial and truant schools of the School Board, or transfer their ship to the School Board, or, if my proposal to split up the School Board were adopted, to a joint committee of the London District School Boards. On the whole, I think it would be better to transfer the management of the industrial and truant schools, training ships, and reformatories to the Asylums Board, and leave the School Board free to deal only with those classes upon whom no suspicion of wrong-doing rests.

(To be concluded in the next number of HYGIENE)

PUBLIC HEALTH REPORTS.

Leicester.—The late medical officer of health for this important and populous borough—Dr. Tomkins—fell a victim to influenza at the beginning of last year, and the post has since been ably filled by his successor, Dr. Joseph Priestley.

Owing to the enlargement of the borough, under the provisions of the Leicester Extension Act, 1891, Leicester now comprises a total area of 8,534 acres, with an estimated population of 180,066, occupying 37,095 houses. The newer portion of the borough, between five and six thousand acres, is for the most part only sparsely inhabited.

During the year 1892 the birth-rate was 32·2 per 1,000, and the death-rate only 18·04, notwithstanding the existence of several epidemics of infectious diseases, viz., influenza, measles, whooping cough, scarlet fever, and diarrhoea. The total infantile mortality was 1,150 children under twelve months of age, representing a rate of 197·7 per 1,000 births; and the zymotic, or infectious, diseases death-rate was 2·5 per 1,000. The number of deaths registered as due to the principal of these affections were—diarrhoea 214, measles 126, whooping cough 52, scarlet fever 41, influenza 33, typhoid or enteric fever 17, diphtheria 10, erysipelas 7, and smallpox 6. Considering the fact that many of the inhabitants of Leicester are opposed to vaccination, we should expect to find a large number of deaths from this loathsome, preventable disease registered during the current year, now that smallpox is rife in many parts of the country.

The mortality from measles last year was higher than it has been in Leicester for the last twenty years, with only one exception (1880). Nearly all the deaths occurred in children under five years of age; and by far the greater proportion were amongst the families of the poor, arising from the insanitary domestic surroundings of the patients, e.g., defective air space, improper food, and inadequate nursing. Dr. Priestley is of opinion that many of these little victims would have been saved if measles had been a notifiable disease, so that steps might have been taken to prevent the extension of the epidemic, and the worst cases removed to hospital. Erysipelas is a disease in which notification is required, though no apparent benefit accrues; it might, therefore, well be dropped out of the list of notifiable diseases, and measles put in its place.

In connection with the subject of typhoid fever, Dr. Priestley mentions an instance of the disease being conveyed to a large number of persons through an apparently harmless medium—herb beer. The results came about in this fashion. A child having been notified as suffering from typhoid fever, the case was visited by a sanitary inspector, who found the patient, who had been ill for eleven days, lying on a bed made up on the floor in a back room behind a small shop where herb beer and other things were sold. This room was used as a living room for the whole family, which consisted of a man and his wife, seven children, and the grandfather. At the time of the inspector's visit the woman was actually engaged in making herb beer in a large open pan on the floor of the back room, close to the fever patient. The mother was cautioned, and the child was removed to the hospital. Of the whole family—ten in number—four had typhoid, one dying, and five others

suffered from fever, purging, &c., for several days. The grandfather alone escaped, this circumstance being probably due to the Peyerian patches—the parts affected in typhoid—being atrophied at his advanced age. On making inquiries among persons who had bought this infected herb beer, the facts were elicited that it directly affected twenty and indirectly forty out of some 120 who were known to have partaken of it. What better proof could be required of the necessity of isolation in such cases?

The quantity of water delivered by the Water Department (which is the property and under the control of the Corporation, and yielded a profit in 1892 of more than £11,000, after paying debenture interest and carrying some portion of the proceeds to the sinking and reserve funds) was equal to 3,556,677 gallons per day, or a consumption of rather more than eighteen gallons per head daily for all purposes. Having acquired a site for a new reservoir at Swithland, the Corporation are proceeding with the construction of the works, which, when completed, will afford an additional supply of two million gallons daily.

There are ninety-four private slaughter-houses in the borough of Leicester, which, says Dr. Priestley, "are more or less nuisances, sanitary and social." All who read the article in *HYGIENE* for June 16th, on the "Advantages of Public Abattoirs over Private Slaughter-Houses," by Dr. Stephen Smith, formerly President of the American Public Health Association, will cordially agree with Dr. Priestley in his regret at this state of things; and as there are twelve well patronised public slaughter-houses at the Cattle Market there is less excuse in the case of Leicester than in many smaller towns. The adoption of public abattoirs and the extinction of all private slaughter-houses might be accompanied by another public improvement, namely, the centralisation of the meat supply for such a large and constantly increasing population. At a prosecution at Leicester for selling diseased meat, a butcher was fined £20 with costs for exposing for sale the carcase of a cow which had died from purulent inflammation of the pericardium and dropsy, an offence which could not have been committed if only public abattoirs had existed.

Mr. Coles, the meat inspector, is specially mentioned in conjunction with the chief sanitary inspector, Mr. Brailey, as having energetically and efficiently performed arduous duties. There are five other sanitary inspectors and two disinfectors who are alike deserving of commendation. The total number of visits paid by these officials in connection with complaints, contagious diseases, and systematic house-to-house inspections was

46,141 during 1892, being a higher number than in any previous corresponding period.

Dr. Priestley, in addition to being medical officer of health for Leicester, is also the public analyst. In that capacity he has examined and reported on 154 articles (140 genuine, 14 adulterated) under the provisions of the "Food and Drugs" Act. Of these samples 120 were of milk; three were found to be adulterated, the others being passed as genuine, though many of them were of very poor quality—the reason assigned by Dr. Priestley being that the Somerset House authorities adopt too low a standard of purity, thus allowing a large amount of milk-adulteration to take place without the offenders becoming amenable to law. This is an unsatisfactory state of things, of which frequent complaints reach us from public analysts. The other adulterations were four of drugs, three of aerated waters, and two each of citric and tartaric acid. In the cases of the aerated waters the contamination was lead, in one sample as much as $\frac{1}{16}$ th of a grain per gallon. Lead was also found to the extent of $\frac{9}{10}$ ths of a grain per pound in the citric and tartaric acid. All of these lead-adulterations must have been due to the use of defective apparatus in the process of manufacture.

Forty-three samples of well water were submitted for analysis, and of these forty-one (all but two) were found to be unfit for drinking purposes, and orders were consequently issued to close the wells from which the impure water had been obtained. The public supply from the Corporation mains was of the usual fair standard, though the albuminoid ammonia (probably from vegetable sources) was higher than it should be.

ON HAY-FEVER, HAY-ASTHMA, OR SUMMER-CATARRH.*

BY THE EDITOR.

(Continued from page 127.)

THAT the temperature has certainly a great influence over the severity or mildness of the attacks of hay-fever or summer-catarrh cannot be doubted. In very hot, dry weather, the patient's sufferings are invariably augmented, while a reduction of the temperature, or a heavy fall of rain, almost as invariably brings with it some degree of temporary relief.

Strong light, as well as great heat, induces or aggravates the symptoms, although the ozone theory

* Through inadvertence it was not stated in our last number, that this article was continued from page 99 (June 30), having appeared in each number since May 13.

advanced by Dr. Phœbus appears to me an insufficient explanation of this circumstance.

In the majority of cases of hay-fever the patients experience a decided sense of relief when sitting in a partially darkened room. One gentleman who came under my treatment told me that he preferred his cellar to any room in his house during the months of June and July, and that he often sat there for hours together during the middle of the day in order to escape from the solar heat and light.

Many persons liable to this affection are unable to remain for any length of time in a room strongly lighted with gas at night, such as a dining-room, ball-room, or theatre. The ozone theory would not apply to these cases; but it will be readily understood how the conjoined effects of strong light, excessive heat, and the diffusion of dust through the room, would give rise to the symptoms in persons predisposed to them.

Closely connected as hay-fever is with excessive susceptibility of the nervous system, I should feel rather disposed to consider the influence of strong light in the development of the symptoms of this disorder as dependent upon the intimate connection which exists between the branches of the ophthalmic division of the fifth part of cranial nerves. These branches, viz., the lachrymal, the frontal, and nasal, are distributed to the eye, the lachrymal gland, the mucous membrane of the nose and eyelids, the integument of the nose and forehead, and the muscles, above the upper half of the circumference of the orbit.

Any irritation of the lachrymal nerve will cause sneezing and coryza, owing to the connection between this nerve and the nasal nerve; and, on the other hand, any irritation of the nasal nerve, such as, for instance, the application of strong snuff or some other stimulus, to the mucous membrane lining the nose, will produce lachrymation and watery running at the eyes.

In like manner, it does not seem at all improbable that powerful solar light may cause lachrymation coryza, sneezing, and frontal pain (all of which are prominent symptoms of summer-catarrh), through the sympathetic irritation which it produces in the various branches of the ophthalmic nerve.

The disorder is made worse by any causes which weaken the patient, or which disturb the nervous system; and, like common catarrh, it is augmented by sudden changes, especially increase of temperature, windy or stormy weather, and other variable conditions of the atmosphere.

In cases of summer-catarrh arising in inland situations, the quarter from which the wind blows bears some relation to the intensity of the symptoms. When the wind blows from the south, south-west, and west, without rain, the patient's sufferings are, as a rule, augmented; and when it veers round to an opposite quarter, north or north-east for example, an agreeable diminution of the severity of the symptoms is experienced. This peculiarity is, doubtless, connected with the fact that the winds blowing from a southerly or westerly direction are accompanied by more heat than those blowing from the north or east.

The diagnosis of hay-fever is generally unattended with much difficulty, if the phenomena connected with it are properly noted.

The affections for which it may be mistaken are ordinary catarrh, catarrhal ophthalmia, bronchitis, asthma, influenza, vesicular emphysema of the lungs, and (when the pain over the eyes is very severe) frontal neuralgia.

The periodicity of the attacks of hay-fever or summer-catarrh, which return every year about the same time, with almost unfailing certainty (in many persons not varying more than one or two weeks, sometimes scarcely a day, in the date of the annual recurrence, for several years in succession), will serve to distinguish it from most of the disorders enumerated in the preceding paragraph; and the progress and peculiar character of the symptoms, the almost incessant sneezing, coryza, and watery running from the eyes, conjoined with the absence of any special signs of any chest affections on auscultation or percussion of the chest, will satisfactorily confirm the diagnosis.

As regards the prognosis, it is usually favourable as far as any actual danger to life is concerned; and after the annual attack has quite passed off the patient gradually regains his strength, and is in as good a state of health as he enjoyed previously. Still, though it does not often shorten life in one sense, except when asthma, chronic bronchitis, or some other pectoral affection supervenes upon it, it certainly does in another—viz., by diminishing the enjoyment of life, for the majority of sufferers lose many weeks, and often months, every summer, through their being both physically and mentally prostrated by it, and are thus prevented from following their usual pursuits.

One point in connection with hay-fever should not be lost sight of—viz., the frequency with which it becomes complicated with chronic asthma, or bronchitis, as the age of the patient progresses. In fact, it may be predicted as almost certain that a person who

suffers from hay-fever in the middle period of life will, when he gets older, suffer from asthma or chronic bronchitis.

According to most writers on the subject, including Bostock and Phœbus, when hay-fever has shown itself in any individual, it will continue to recur yearly during the whole of the patient's lifetime. To some extent this is contrary to the results of my own observations of the disorder.

Indeed, I have noticed that it occasionally presents a tendency to disappear, or, at any rate, to diminish in severity, as the patient advances towards old age; but although there is sometimes an evident tendency to the diminution or disappearance of summer catarrh, the patient generally escapes one disorder only to fall into another, being almost always liable to chronic asthma or bronchitis.

With respect to the effects of medical treatment, I decidedly see no reason for thinking that the symptoms may not be generally very much mitigated. I believe, also, that except in cases where the predisposition is strongly marked, or where the affection has been allowed to get too complete a hold upon the system, careful avoidance of the exciting causes and judicious treatment will succeed in eradicating the disorder; or, certainly, that if the affection cannot be eradicated, we may at all events reduce the attack to a minimum, whether as regards their severity or their duration. Every summer brings further conclusive proof of the amenability of this affection to treatment, even in cases which have lasted for many years, and where the sufferers had long considered themselves as hopelessly incurable.

The variable causation and pathology of hay-fever have led to very wide diversities in the plans of treatment recommended by different writers.

The fact is that in treating hay-fever, as in the management of many other complicated affections, it is worse than useless to attempt to find a specific remedy for cases, or to treat all by the same medicines.

The symptoms, like the causes, vary considerably in different individuals; and the best method of obtaining a cure or relief is that which is directed to meet or subdue the different symptoms as they arise.

The treatment may be divided into two parts, viz., the prophylactic, or preventive, with a view to the prevention of the disorder, and the curative, or palliative, to be adopted when the affection has shown itself.

The former will consist chiefly in the avoidance of the exciting causes of the disorder, such as the aroma

of ripe grass or newly-made hay and of strong-smelling flowers, or the inhalation of the particles of various irritating substances, etc.; protection from the heat of the sun, especially about mid-day, and only a moderate amount of out-door exercise, which should be taken either early in the day or towards the evening; unstimulating diet; attention to the functions of the bowels, skin, &c. Removal to the seaside is oftentimes found beneficial, but cannot always be relied upon. The cases in which a visit to the seaside will most likely prove advantageous are those in which the febrile or asthmatic symptoms predominate, the benefit in the former class resulting from the cool, invigorating character of the marine breezes, and in the latter from the purer state of the atmosphere.

It is commonly supposed that a removal to the seaside is sufficient to effect a cure, or to produce relief in most cases of summer catarrh; but this idea is shown by experience to be not unfrequently fallacious. I have known persons who have gone to the seaside with the hope of obtaining a cessation of their symptoms get so much worse as to be obliged to return to their homes; nor need this be a matter of surprise, when the heat, glare, and dust of many marine resorts are taken into consideration.

When the affection has actually made its appearance, we must direct our attention, as has already been stated, to the different symptoms as they arise.

(To be continued).

REVIEWS AND NOTICES OF BOOKS.

ANIMALS' RIGHTS, considered in Relation to Social Progress. By Henry S. Salt. London: George Bell and Sons.

MR. SALT'S ably-written book is one that shows the author to be in earnest, while it cannot fail to arouse proper humanitarian sentiments in the minds of all who are not so absolutely selfish and narrow in their views as to be beyond the power of forming a just conclusion as to right and wrong. Unfortunately, there is a very large section of society which regards the lower animals as created solely for the pleasure and advantage of man, and which fails to appreciate the fact that, just as property has its duties as well as its privileges, so animals have a claim upon man in return for the functions they perform in the grand system of nature. Such men will often flatter themselves that they are doing all that is required of them in this state of existence when they conform to certain social usages, and are what is commonly called "good citizens." But they ignore com-

pletely their duties towards the "lower animals," as they term them.

They will drive or ride a horse almost to death for some trifling whim, or to enable them to keep some ordinary appointment; they will torture a dog, cat, or other animal, often for no reason at all, save such as may be summed up in the words "senseless caprice;" and under the pretence of sport they will indulge in wholesale slaughter of hand-reared game in a battue, or of pigeons at Hurlingham, with a well-dressed crowd of the upper ten thousand amusing themselves at the sufferings of the maimed birds, fluttering on the ground, with broken wings or legs; they will hunt and worry a poor tame stag, so tame indeed that when liberated for the chase it has to be whipped to drive it away before the dogs are set on it.

Nor are men alone in respect of this selfish cruelty. Women, aye, ladies too, not unfrequently aid and abet acts of wanton cruelty by their presence; and, though they will be guilty of foolish fondness for their pets, they are hard-hearted towards all other animals. A singular instance of this came under our observation some two years ago. The following advertisement appeared in an evening paper—in the height of the London season, by the bye:—"A lady wishes to have from the country a periodical supply of live sparrows for a favourite cat. Address, with terms, Trixie, &c.," at a West-end library. If the compositor who set up this advertisement had happened to substitute "Vixen" for "Trixie," there would have been terrible complaints on the part of Miss, or Mrs., Beatrice Somebody. Never was a truer thing said than "Evil is wrought by want of thought, as well as want of heart." Let us charitably hope that this was "Trixie's" excuse, and that Mr. Salt's book may be sent to her with her next supply of literature from the library which she patronises. Yet, after all, she may be so inconsistent and illogical as to compound for pampering her favourite cat with live sparrows by subscribing to the Anti-Vivisection Society.

*ON THE DISPOSAL OF SEWAGE; WITH
SOME REFERENCE TO SCHEMES NOW
IN USE.*

BY G. C. MOOR, B.A., CANTAB.

I.

IN concluding a paper on methods of sewage treatment read at the International Congress of Hygiene, Dr. Thresh asked this question: "Do any of the processes mentioned, or any combination of such processes, enable us to get rid of our sewage in such a way as to

give rise to no nuisance, cause no danger to health, and this at a cost sufficiently reasonable, considering the importance of attaining such results?"

In the opinion of most experts at the present day, the only answer that can be given to this enquiry is an emphatic negative.

We can see this from a brief consideration of those methods that are now in use; they may be divided into three classes:—

1.—Lime processes.

2.—Processes in which lime is not used.

3.—Irrigation.

1. The first of these classes may be briefly disposed of. The lime is used either alone or in combination with aluminous salts, or as in Hanson's process, with the so-called sulphurous powder. In each of these cases a good effluent is the only thing aimed at, as the sludge is worthless.

It is also worthy of notice that where lime has been used to precipitate, it must also be added to press with. Under this head also comes the Amines process, in which herring brine is added to the lime with a view of sterilising the sewage.

2. Processes in which lime is not used.

The best known of these is the A. B. C., in which the sewage is precipitated by a mixture of clay, alum, and charcoal, with a little blood. A clear, inodorous, and tasteless effluent is produced, and the sludge is pressed without lime, dried and ground; it is stated to contain 3 per cent. of ammonia and 5 per cent. of phosphates; both of these figures seem high if the manure sold has not been enriched by ammonia or phosphate. Much has been said for and against this process; at any rate, it is better that the sludge, whatever it contains, should go on the land than have to be thrown away, as sometimes happens in the lime processes.

The International Sewage Purification Company precipitate with a mixture of magnetic oxide of iron and salts of iron, alumina, and magnesia. The effluent is further purified by passing through a filter-bed of gravel and polarite. The sludge, when pressed without lime and dried, readily crumbles into a fine powder, and should be of some value as manure.

Webster's process, or Electrical Treatment.—The sewage travels along a trough in which are placed iron plates connected with the terminals of a dynamo. Water is decomposed and some iron also passes into solution, precipitation takes place, and the effluent is said to be good.

3. Irrigation.—In cases where land is cheap and of suitable character this plan may be adopted with success,

In most cases the first cost is great, and so is the cost of maintenance. It is a disputed point as to whether parasites may not be communicated to the animals feeding from the crops raised off unfiltered sewage, and it is certainly not advisable, as is sometimes done, to irrigate fields with untreated sewage, so that pools of putrifying matter are formed, round which cattle are feeding.

In the case of London it would be practically impossible to get land enough to deal with the enormous volume of sewage, which is very greatly increased in wet weather, and though it may be said that this is in great part rain water, yet the dirt washed off the streets and the fungus torn from the sewers by the increased volume of water will render some method of treatment as necessary as if it were ordinary sewage.

II.

And now to come to the subject of this paper. The treatment I have to bring forward has been practically tested by me at experimental sewage works at Leyton. I have no very novel suggestions as to the precipitation of sewage, the originality of my method depending on the manner in which the sludge cake, produced by any precipitation process, may be converted into marketable products.

Let us consider the ordinary composition of a sludge cake; it is roughly in 100 parts,

Water	25
Inorganic matter containing phosphates	20
Combustible matter containing nitrogen	55

The above figures refer to sludge cake that has been dried by exposure to the air for some days.

Now, suppose we could afford to distil the cake in gas retorts, we should save the ammonia; but it would not pay, unless one could produce a sludge very rich in ammonia, and then it would be saleable without further treatment. There is, however, a cheaper way of distillation than I have just mentioned. Mr. Rees Reece, in a patent a good many years old, described a method of obtaining tar, ammonia, acetic acid, and inflammable gas from peat; this process was in successful operation for some time. He employed a kind of lime kiln with a forced draught, connected with a series of condensers. The operation was conducted in such a manner that the material in the lower part of the furnace was kept in active combustion, its heat distilled the material directly above, and this in its turn gradually descended to serve as fuel for the succeeding charge. Thus nearly the same effect was produced as if the peat had been distilled in retorts, except that, instead of carbonised matter, ash was obtained.

I have employed the same method for dealing with sludge cake and have made experiments on a sufficiently large scale to show the possibility of practical working. A furnace was set up built of boiler plate, lined with brick, and fitted with a fan and condensers; this was kept burning for three weeks continuously, during which time it was fed with sludge cake alone, and this sometimes contained more than 30 per cent. of water, as some came straight from the press. The sludge gives ample heat for its own distillation, and might also be used to raise steam in the same furnace if desired. The ammonia comes over with the liquor just as in gas works, together with a quantity of light buttery tar which floats on the liquor. The cakes are reduced to a fine ash, which, if the temperature is raised by increasing the blast, can be changed into clinker. A very slight blast is sufficient to distil with, merely enough to get the products of distillation through the condensers.

Now the first question that will suggest itself is, what portion of the theoretical yield of ammonia is actually obtained? Eighty per cent. was what I actually obtained with the apparatus I had there, and it is at least probable that more could be obtained with better apparatus.

If the blast is carefully regulated the uncondensed gases will burn, being of similar composition to what is termed "producer gas;" this might be employed in raising steam to drive the fan, pumps, &c., working up the ammonia liquor, or distilling the tar. I had originally intended to mix the ammonia, fixed as sulphate, with the ash to form a manure for general purposes; this cannot be done if there is much free lime in the ash, as ammonia is disengaged too readily.

Here perhaps I ought to state the reasons which compelled me to give up working at Leyton (where I was treated with great kindness by the authorities). The first reason was the low value of the ash, which contained about 60 per cent. of calcium salts. This great excess is due to the addition of lime first to precipitate and afterwards to press with.

The lime also introduces another difficulty, and that is the production of clinker in the furnace. The temperature of the furnace must of course be kept up to that point at which inflammable gas is produced, and when this is done it is hard to avoid a certain amount of clinker being formed also.

In the case of some towns where clinker can be used this might be done, and the ammonia alone relied on as a source of income, since sludge cake, even as produced at present, will yield enough ammonia to do more than pay for the distillation in the manner described.

The uncondensed gases from distilling or baking

sludge cake have an exceedingly unpleasant smell, and must be burnt to avoid creating a nuisance.

Some time ago experiments were made of burning cake made from London sewage in a kind of oven, built with partitions so that the heat from one assists the one next to it, fires being lighted successively. The cake burned without difficulty, but the ash being of little value the process was abandoned. I believe no attempt was made to collect the ammonia.

A few years ago some ovens were tried at Leyton for burning the sludge cake to obtain ash; the experimenters either did not attempt or were unable to obtain the ammonia.

There was little or no sale for the ash, and this process was subsequently abandoned.

As regards a method of precipitation to go with the method of utilising sludge cake which I have just detailed, it is obvious where a separate system is used for storm water the ash will be worth more, as it will not be so contaminated with silica and other mineral substances from the roads.

Of course what is wanted is a means of producing a sludge cake as rich as possible in ammonia and phosphate, at the same time without adding precipitants in any large quantity, which would lower the percentage of phosphate in the ash. At the same time the pressing ought to be done without lime. This is possible, as it is done at Kingston.

I have not been able to make experiments on this subject, but it seems certain that the use of lime ought to be avoided at all costs, and I should be inclined to try carbonised sludge in powder mixed with salts of alumina and iron, after precipitation running the liquid through a bed of lumps of carbonised sludge; when this bed is too foul to use any longer it can be burnt in the furnace.

I was not successful in preparing carbonised sludge in the same furnace that I have spoken of, though I think it could be done in a larger one. The attempt was made to rake out a portion of the sludge after being carbonised, but before it was burnt to ash. At any rate, if this cannot be done, the cost of carbonising sludge in closed retorts, heated by the inflammable gases I mentioned, would not be prohibitive.

It seems probable that by using a sufficient quantity of this carbonaceous material (which can so readily be renewed) a considerable degree of purity could be arrived at in the effluent.

Any germs present in the sludge, which are sometimes very numerous, are of course destroyed in the furnace and any vegetable matter is reduced to ash, so that pot-

ash contained in the solids suspended in the sewage is rendered available.

As to what proportion the resulting manure, if the whole of my scheme were in operation, would be by weight to the cake dealt with, it is not possible to speak with accuracy; it might probably be one-tenth.

At the present day it is fast becoming widely felt that it is the duty of towns to treat their sewage in some way, so that no injury may be caused to health, yet we surely ought not to rest content with processes which yield nothing but refuse. It is now many years since Liebig insisted on the need of maintaining a proper circulation of phosphates and ammonia if we wish our land to remain fertile, and this need, instead of diminishing, shows itself more clearly every day.

NEWS AND NOTES.

Not Far Wrong.—Little girl, describing to a lady visitor the medicine she had been taking:—"I took some compulsion of cod-liver oil, and——"; Lady, interrupting:—"You mean emulsion, don't you?" Little girl:—"Well, I feel certain there was some compulsion about it."

* *

Macclesfield.—The Corporation are applying to Parliament for powers to acquire land for sewerage disposal purposes. The Bill has been referred to the Standing Orders Committee of the House of Lords.

* *

Temperance in New Zealand.—We learn from a recent report that during the past fifteen years there has been a great decrease in the consumption of intoxicating liquors in this colony. Since 1878 the consumption of spirits per head has fallen 48 per cent., of wine 61 per cent., of imported ale and beer 64 per cent., and of New Zealand ale and beer 22 per cent.

* *

A Likely Diet.—"I'm going to be a contortionist when I grow up," said Master Johnny proudly. "I'm going into training soon, so I want you to tell me what is the best thing for me to eat." "Green apples, my boy," chuckled the old man.

* *

Influenza has been peculiarly rife in an epidemic form on board the British men-of-war and in the Royal Naval and Royal Marine Barracks, the result being that the Naval Hospital has been so crowded with patients that all ordinary cases of sickness have had to be treated on board the ships or in the barracks where they occurred.

* *

Plumbers' Registration Bill.—The order for Committee for this useful measure has been discharged, on the motion of Mr. Knowles, in the House of Commons, and the Bill has been referred to the Standing Committee on Trade.

Wakefield.—The Select Committee of the House of Commons have passed a Bill to confirm a provisional order of the Local Government Board enabling the Wakefield Rural Sanitary Authority to acquire land for the purposes of water supply and sewage disposal for several parishes situated in the Wakefield Union.

* *

Advice Gratis.—"I feel tired and worn out, as if on the way home, doctor; what ought I to take?" said a citizen, sadly, to a medical acquaintance, from whom he was trying to get some gratuitous medical advice. "Take a cab," replied the physician, to the great disappointment of his querist.

* *

The Public Health Acts Amendment Bill has been withdrawn, there being no prospect of its being passed this Session.

* *

The Housing of the Working Classes Act (1890) Amendment Bill was read a third time in the House of Commons on the 17th inst.

ANSWERS TO CORRESPONDENTS.

The Nuisances Created by Tanning.—A subscriber living in the North of England would be glad to be informed of any article or other literature on this subject.

Burlington.—We should not advise you to take separate action in the matter. The Local Board would move in it at once if you were to place a complete statement in writing before them at their next meeting.

Mons. Despard (Paris).—The new volume (Vol. VII.) commenced with the May 13 number, which also began the weekly issue. The annual subscription for France and any other country within the Postal Union is only 6s. 6d., which sum includes postage.

Senex.—Mr. John Hamer is the honorary secretary of the Mansion House Council on the Dwellings of the Poor.

A. W.—Mr. M. C. Cooke, a great authority on fungi, says that 1,400 known species of mushrooms and toadstools are to be found in the British Isles; but of these only 134 can be relied on as edible.

A Lady.—There is greater waste in roasting and baking than in boiling meat. Dr. Letheby estimated that beef and mutton lose 23 per cent. by boiling, 31 per cent. by baking, and 34 per cent. by roasting.

G. M. (Liverpool).—The articles on Hay-Fever have appeared in every number of *HYGIENE* since May 13 except that for July 7. They will be completed in the two next numbers. If you wish to communicate with the author, send your letter (under cover) to the publishers, Savoy House, 115, Strand, W.C.

Inquisitive asks:—"How is sunshine measured?" The best apparatus, styled "Stokes' Sunshine Recorder," is in the form of a sphere of glass, adjusted in such a manner as to accommodate itself to the varying positions of the sun—a burning glass, in fact. The heat which is thus concentrated falls on a card, upon which hours and quarters are printed, and the card becomes scorched at the focal point. Upon looking at the burnt card afterwards it will at once be seen, by examining the hours and quarters, at what time and for how long the sun has been shining.

M. L. (Exeter), G. H. (Birmingham), and Mr. Webster are referred to the first part of the answer given to *Mons. Despard*.

Cremationist.—Among well-known personages who directed cremation to be adopted for the disposal of their bodies after death were Baron Huddleston, for many years one of the judges in the Exchequer Court; Mr. Kinglake, the historian of the Crimean campaign; and the Duke of Bedford. The cremation movement is gradually overcoming all the objections—chiefly of a sentimental character—made against this mode of disposal of the dead.

Filtration.—The limit as to rapidity generally adopted by the London water companies is represented by the passage of about 540 gallons of water through each square yard of the upper surface area of the filter-bed in twenty-four hours, or $2\frac{1}{2}$ gallons through each square foot of surface per hour. Any more rapid passage than this could not be relied on for obtaining water bright and clear.

Dr. T. Stokes Guppy (Falmouth) and numerous other readers write to congratulate us on our outspoken expressions concerning patent medicines. We are much obliged for their kind encouragement. We were lately told that, at one of the largest metropolitan hospitals, a lecturer told his audience that such a systematic exposure had never before been attempted. That is so; and we confidently look for the support of the medical profession, and of all who dislike quackery, in our arduous task. Every reader could help us much by making *HYGIENE* known to his circle of acquaintance.

EDITORIAL AND PUBLISHING NOTICES.

EDITORIAL.—The Editor begs to express his thanks to numerous correspondents, and to state that he will be pleased to receive any articles or correspondence coming within the scope of *HYGIENE*, reports of medical officers of health, items of general or local sanitary interest, newspapers (marked at the part to which it is desired to draw attention), &c.

PUBLISHING.—The terms of subscription not having been raised, although under the new arrangement fifty-two numbers instead of twelve will be sent out annually, all subscriptions now running will continue good for the original period.

HYGIENE will be forwarded, post free, to all parts of the Kingdom, and to all countries within the Postal Union (including the United States, Canada, France, Germany, Belgium, Italy, Austria, Hungary, Spain, Portugal, Switzerland, the Netherlands, Russia, Denmark, Sweden, and Norway), on the following prepaid terms:—Twelve months, 6s. 6d.; six months, 3s. 6d. Subscription terms for Australia, India, the Cape, and all other parts of the world can be ascertained by inquiry at *HYGIENE* office.

ADVERTISERS are requested to bear in mind the greatly increased circulation of *HYGIENE*, with its weekly issue and reduced price. In addition to the large, regular circulation, many thousands of copies are distributed annually to sanitary officials, medical men, private addresses, public libraries, clubs, hotels, &c.

HYGIENE.

NEW (WEEKLY) SERIES.

Vol. VII. commenced with the Number for May 13th.

Chief Contents of May 13th Number :—

Public Health Reports.—Beauty: How to Preserve it.—Patent Medicines: No. 1. Mattei's Electro-Homœopathic Remedies.—Miss Buckland on Food.—British Health Resorts: No. 1. Swanage (*illustrated*).—The Anti-Adulteration Society.—Air and Light: A Doctor's Story.—Lead-Poisoning.—Dietetic Notices.—Hygienic Notes and News, &c., &c.

Amongst Contents of May 20th Number are :—

Hygiene in the Arrangement of Buildings.—Alcoholism in Relation to Public Health.—Cocoa and Chocolate (*illustrated*).—Public Health Reports: Kensington and Braintree.—Patent Medicines: No. 2. Clarke's Blood Mixture.—Hay Fever, Hay Asthma, or Summer Catarrh.—Reviews and Notices of Books.—Hygienic News and Notes.

Chief Contents of May 27th Number :—

Alcoholism in Relation to Public Health, by Professor Westergaard.—Public Health Reports: Lincoln, Leighton Buzzard, and Stourport.—Patent Medicines: No. 3. Clarke's Blood Mixture, Chlorodyne, and Opiates.—Hygiene in its Application to Buildings, by P. Gordon Smith, F.R.I.B.A.—Hay Fever, Hay Asthma, or Summer Catarrh.—A Yarn about a Boil.—Impediments of Speech.—The New Disinfectant, Izal.—Hygienic News and Notes.

Amongst the Contents for June 9th are :—

Gardens of Rest: The Cemeteries of the Future, by Rev. W. A. Willis.—Hygiene and the Arrangement of Buildings, by P. Gordon Smith, F.R.I.B.A.—Noxious Employments: Alkali Working, Bleaching Powder Making.—Hay Fever, Hay Asthma, or Summer Catarrh.—Public Health Reports: Ripley, Derbyshire.—Patent Medicines: No. 4. Revalenta Arabica.—Tobacco: Wellington and Napoleon.—Reviews and Notices of Books.—Hygienic News and Notes.

Chief Contents of June 16th Number :—

The Advantages of Public Abattoirs over Private Slaughter-Houses.—Patent Medicines: No. 5. The History of Patent Medicines; Sequah's Oil and "Prairie Flower" Mixture.—British Health Resorts: No. 2. Lowestoft (*with illustration*).—

Noxious Industries: Match Making, India-rubber Dressing, White Lead Works, etc.—The Power of Imagination Exemplified.—Notes and News.—Answers to Correspondents.

Contents of June 23rd Number :—

Shall we Lock up the Drink or the Drunkard?—Public Health Reports: Hanley, Staffordshire, and Kensington.—Patent Medicines: No. 6. Holloway's Pills and Ointment; the Sequah "Prairie Flower."—The Ventilation of Ships.—Reviews.—Hay Fever.—English *versus* Foreign Cocoa.—Anthrax, or Malignant Pustule.—The Hygienic Importance of Cleanliness; Public Baths.—Correspondence, News, Notes, &c.

Contents of June 30th Number :—

London Government, as It is and as It should be.—The Use of Steam in Weaving Factories.—An Age of Stimulants.—The Distinctions between Health and Disease.—Patent Medicines: No. 7. Correspondence concerning Holloway and Mattei.—Public Health Reports.—Hospital Accommodation in the Metropolis for Persons Suffering from Infectious Diseases.—The Manufacture of Mineral Waters.—Hay Fever.—News, Notes, Correspondence, &c

Chief Contents of July 7th Number :—

Cholera: Its Causation and Prevention. By Sir Spencer Wells, Bart., F.R.C.S.—Rural District Nurses. By Lady Victoria Lambton.—British Health Resorts: No. 3. Clacton-on-Sea and Walton-on-the-Naze.—London Government, as It is, and as It should be.—Notable Industries: No. 1. Bread and Bread Making.—Patent Medicines, No. 8.—Reviews: The Brighton Life Table.—Fashionable Follies.—News and Notes.—Answers to Correspondents, &c.

Chief Contents of July 14th Number :—

Public Health Reports: Kensington.—Hay Fever, Hay Asthma, or Summer-Catarrh.—Cholera: Its Causation and Prevention. By Sir Spencer Wells, Bart., F.R.C.S.—Patent Medicines, No. 9.—Allen's World's Hair Restorer; the Mexican Hair Restorer; Rowland's Kalydor; Gowland's Lotion for the Skin; Ruppert's Skin Tonic; Singleton's Golden Ointment; Mattei's Electricities. By the Editor.—The Manufacture of Mineral Waters. By T. P.—Bruce Warren.—Church Bells, a Nuisance in Large Towns.—News and Notes.—Answers to Correspondents, &c.

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FOOD ADULTERATION.

IN what light ought food adulteration to be regarded? Is it a sin, or only a crime? There need not be the smallest hesitation in pronouncing it a gross offence against good morals. It is a fraud, and it should be invariably regarded as a fraud. The law should severely punish it, although the adulteration might be harmless to the digestion of the buyer. When the unsuspecting purchaser receives a pound of what he believes and is told is a food of the value of one shilling, and the retailer has substituted half-a-pound of something else, worth threepence a pound, for half of the dearer article, theft is, in plain English, practised. But when, instead of some harmless substitute, powerful poisons or other more or less injurious additions have been made, what then? Fraud is a grave offence; but when, besides fraud, the purchaser has to dread slow poisoning, matters are still worse, and he is tempted in his despair to fall back on bread and water and unbreathed air. But, stay; his bread is fully as likely as anything else to be adulterated, while water may be nothing more than diluted sewage, in those small towns at any rate where one's neighbours refuse to have their dumb wells emptied oftener than once in four years, and then only as a special favour never to be again repeated, while the local sanitary authority, overawed by the majesty which invests the influential classes, dares not interfere. Nor in country towns of some antiquity can fresh air, God's best gift to suffering humanity, be any more counted upon than in the largest towns. What from putrifying heaps of refuse in half the

neighbouring gardens and foul streams of sewer gas pouring forth day and night from leaking cesspools, the very atmosphere one is condemned to breathe reminds one forcibly and unpleasantly of a slum in a back street; nor to the sufferer is it any consolation to reflect that the chief offenders are too often to be found among the best educated people who of all men should know better, but of all men are the hardest to influence for their good. When we have small combined districts and really efficient and conscientious medical officers of health not dependent on private practice for a living things may mend, and country towns may rejoice in pure air and village streams in unpolluted water.

Is adulteration a scientific subject? Well, I am inclined to think it is, for only the most perfect scientific training would enable those elaborate and curious combinations, medications, and substitutions to go on which distinguish our highly cultured age. Sometimes I half wonder how much we have to thank the scientific culture of the day for these wonderful compounds. An acquaintance of mine has a large laboratory in whose dark recesses he plots dire things against his neighbours. He locks himself in while he blends and compounds the dangerous and costly poisons which he uses in the preparation of his wares. Seeing that my acquaintance candidly confesses that he is not a scientific man, and that his too brief education only comprised a very few years at the Birmingham Grammar School, it must be confessed that there was a curious combination of daring and reckless ignorance in his manipulations, and as I glanced at Winchester bottles filled with deadly poisons

I wondered how many innocent lives my acquaintance had brought to a premature end; but on this point I could not press for information. Fortunately for the peace of Birmingham and of Dr. Hill (medical officer of health and public analyst for that city) my heroic friend has not been carrying on his murderous experiments on the much-suffering British public in the midland metropolis, but in a venerable city not so well looked after. He has now left that ancient seat of religious teaching, and has made his way to a town of some size and importance in another part of our little island, and there he finds ample scope for his capital and enterprise. One day in a generous mood he sent me a bottle of some detestable compound, which he wished me to try. He guaranteed it to be wholesome; he probably meant not immediately deadly. I confess I did not like its appearance or smell, but, relying on his word, I boldly drank the contents with the lamentable results I ought to have apprehended. For a day or two his *harmless* non-alcoholic compound made me wonder which was worse—to be half killed by medicated sherry or port not containing a drop of the juice of the grape, or by some abominable substitute offered to the too credulous abstainer.

What can we sanitary reformers do but gnash our teeth,—we who know that the prevention of disease is so easy, while its cure is so hard as to tax the greatest abilities and the most consummate skill, and even then the results are often disappointing? When we, in our solicitude for the welfare of our neighbours, try to teach, when we raise our feeble voices and insist on making ourselves heard, we are voted an unmitigated nuisance, nay, a bore—something incomparably worse, according to Lord Beaconsfield, wisest and most enigmatical of men. All our neighbours know that we have secret ends to compass, and while we, in our innocence, fancy that we are plotting against our incomes for the public weal, the ungrateful world sees too clearly that we have deep designs against it, and our enlightened neighbours are loud in their denunciations; they, blind leaders of the blind, see in our machinations only another proof that whenever three physicians are found together, two at least are atheists, perhaps three.

Matters were once far worse, thanks to our Food Adulteration Acts, our county and borough analysts, and the advance of public opinion. Few towns had medical officers of health or public analysts, while the local authorities thought sewer gas, polluted water, and contaminated food much more to be commended than pure, natural food and drink. Undertakers flourished, and wholesale manufacturing chemists did a large trade.

We have changed all that. We have medical officers of health (not always abreast of modern knowledge, though) who, unfortunately, dare not, with the fear of man before their eyes, come down on any landlord or wealthy parishioner, whatever his misdemeanour, though a humble labourer is sometimes made an example of to encourage his betters, for he, wretched unfortunate! cannot, like the malicious gentleman—highest product of our public schools and ancient universities—stand in the way of perfect justice being meted out to all classes. Not that all educated men are enemies of sanitary progress, very far from it, for many are as strenuous advocates of progress as the most radical health reformer, and display in their own parishes and households a regard for the public health and a desire to help their neighbours above all praise, and which may be set against a few clerical black sheep who here and there oppose social progress. We have unfortunately some sanitary boards so badly posted up in their duties that they do not even know the most elementary truths connected with hygiene. But we cannot all live in Birmingham and appeal to sanitary authorities and medical officers of health with the necessary judgment and knowledge to discharge their responsible duties thoroughly and impartially.

Accum, in that famous treatise of his, "Death in the Pot," startled the world with such a list of adulterations as surely no one dreamed as possible; while more recently Dr. Hassall has in his exhaustive works on "Food Adulteration" shown that the depredations of fraudulent manufacturers have continued, and are perhaps even worse. No mercy should be shown to the adulterator, and with our perfect methods of analysis it is quite just to punish a trader whose goods will not bear the test of the microscope and the proper chemical reagents. To the practised eye the results of a thorough investigation are infallible—there is no *if* or *but* in the matter. The adulteration stands out revealed in all its hideous nakedness, and no excuse need be considered, indeed excuses would only make adulteration more the rule than ever.

Where does the long list of adulterations end? All the condiments that come to table can be, nay, often are, so medicated that they do not deserve any mercy; flour, colouring matters more or less harmless, and I know not what else make them up. Flour too is doctored—though what bitter sarcasm lurks in that too familiar word!—with cheaper substances than any with which wheat has any concern; while the staff of life is so compounded that it is a daring assertion to call it wheaten bread. Clothes are not permitted to escape; they are weighted, dyed

with poisons which the sensitive skin absorbs, much to the discomfort of the unfortunate wearer, who sometimes begins to fancy that his feet—for they are the chief sufferers—have suddenly developed a new and painful form of cancer. Sweetmeats are a splendid field; there the ingenious though not ingenuous compounder has a grand opportunity. No better exercise could be afforded to the inquiring mind of the medical student going through a course of toxicology than to give him sweets in solution and let him ascertain, not the poisons actually present—for were that required of him, there would be no end to his labours—but those not mixed with the tempting sweets offered to the delighted Board-school pupil. As for aerated drinks, what an opportunity they afford; and alcoholic beverages are even more conspicuous than anything else for the facilities they give for the study of the action of poisons. Tea and coffee do not escape, and cocoa has had its full share of attention. Here, however, sugar and starch seem to have been the principal adulterants. Was this fraud or not? I hardly like to express an opinion, for as long as the ignorant public insisted on a rich, starchy soup at a price too low to allow of pure cocoa being offered for sale, it could hardly be called a fraud. A patient told me yesterday that she buys nice cocoa at sixpence a pound; true, she said it was rather thick, but it was very satisfying.

Starch in the preparation of cocoa seems to have had its use in suspending some part of the cocoa butter; and so it might be excused, for I suppose that it was pretty generally understood that cocoa and chocolate were manufactured articles and were mixtures, the latter necessarily so. But for many years the perfect methods of modern art have admitted of the removal of nearly the whole of the butter or oil, so that the last shadow of an excuse for the presence of starch in the dearer preparations is removed, and immense quantities of absolutely pure cocoa are sold in every large centre of population. Judge, then, of my surprise to receive a pamphlet some time ago dealing with Dutch cocoas, and bearing on its front page the names of certain chemists of high reputation and acknowledged skill. That pamphlet was addressed to the medical profession, and announced in plain language that those Dutch cocoas contained a certain amount of potash and soda over and above the natural percentage. The excess in one brand is given, calculated as carbonate of potash, as 3.95 per cent. Stranger still, we are told that the secret of adding these alkaline salts is rigidly guarded by the foreign makers, and is their property. Now surely we must protest. Why should medical or scientific men allow their

names to appear in connection with secret preparations? Is it not a flagrant prostitution of the dignity of their respective callings? Does it not open the door to fraud of an appalling character? Quite apart from any question as to the injury to the human system from taking these salts regularly and in large quantities, it would be only right that the medical profession should resolutely discountenance the use of any and all secret preparations confessedly adulterations, and adulterations too of a sort not justified by any of the exigencies of the circumstances. True, it is said that these salts give an appearance of fictitious strength to the infusion, but that is a fraud on the consumer. The action of potash I need not enter into here, but it cannot be contended that the healthy human frame requires considerable doses every day, and it must be allowed that cocoa is only to be recommended as a beverage when it is as nearly pure as possible.

Attention has recently been drawn to some startling exposures in connection with the prosecution of a great Dutch cocoa firm in Paris. It then turned out that the adulterations practised were far more serious than had been suspected; it was not only stated that there was, as was well known to experts, a large addition of potash, used to give the resulting infusion a deceptive appearance of greater strength, and therefore distinctly fraudulent, but that the potash so used was in the form of sulphate, alleged to be a strong poison, particularly dangerous to persons with weak kidneys and to young children. Our former article on English *versus* Foreign Cocoa (HYGIENE June 23) went fully into the matter. The adulteration could not be denied, and was admitted by the managers of the incriminated firm. Of course they contended it was harmless. Now, they had been advertising their cocoa as absolutely pure, so that they had to confess that that statement was entirely false, while strong evidence was brought forward to show that the adulterations, admittedly fraudulent, were also poisonous. So much for some foreign brands of cocoa.

But we have not done with adulterations. Even our drugs are liable to curious manipulations. I need not remind my readers of the singular and very disgraceful exposures which now and again startle the world when some public-minded analyst sends out thirty or forty prescriptions to the local chemists to be compounded, and then sets himself to test for important drugs, which the *conscientious* chemist, duly labelled by some public examining body, has forgotten to put in, while after a time the analyst, to his disgust, finds some of his pharmaceutical neighbours have, out of regard for the necessities of the clients for whom the medicines were supposed

to be needed, substituted other drugs than those ordered, and with actions on the system very far from identical with those expected. It is not pleasant to the anxious medical attendant to find out that the drugs from which he expects so much for the relief of his clients have not had the desired effect; but it is no consolation to physician and patient to be told that this is due to the fraudulent manipulations of the druggist. This is an evil much more to be dreaded in small towns than in places like Birmingham, where several firms of unblemished character and scrupulous honesty have made for themselves an almost national reputation.

How much of the obscure disease that afflicts mankind could be traced to impure food! How many deaths should be laid to the charge of the worried and struggling tradesman of our fiercely competing age; prices beaten down on the one hand by the exacting public, regardless of everything but cheapness, whatever that cheapness may in the long run cost them, and, on the other hand, goaded to madness by unscrupulous rivals who can half ruin him by offering commodities at one or two pence a pound cheaper than he. Nevertheless, the question is a serious one for manufacturers, retailers, the medical profession, and consumers. Medical men should uphold the highest possible standard of purity, while the authorities should make the fraudulent understand that, whatever excuse they might plead, adulterations, unless imperatively demanded by the exigencies of the case, would be severely and promptly punished, and then they would not be adulterations, but processes demanded to carry on the manufacture.

S. U. M.

THE PURIFICATION OF DRINKING WATERS BY MEANS OF THE REVOLVING PURIFIER AND METALLIC IRON.

By W. ANDERSON, D.C.L., F.R.S., M.I.C.E.

THE revolving purifier for the treatment of potable waters is no novelty, as it has been at work on a large scale at various places for some eight or nine years, and, consequently, it is not necessary to enter into any detailed description of the apparatus, or of its mode of working. For the information, however, of those who are not acquainted with the purifier, a short account may be given. It consists of a cylinder, supported horizontally on two hollow trunnions, of which one serves for the entrance and the other for the exit of water. The cylinder contains a certain quantity of metallic iron, in the form either of cast-

iron borings, or, preferably, of scrap iron, such as punchings from boiler plates. The cylinder is kept in continuous but slow rotation by any suitable means, the iron being continually lifted up and showered down through the passing water by a series of shelves or scoops fixed inside the shell of the cylinder. By this means the water as it flows through is brought thoroughly into contact with the charge of iron, which, in addition, by its constant motion and rubbing together as well as against the sides of the cylinder, is always kept clean and active. There are also simple contrivances for preventing the iron from being carried out of the cylinder or piled up at the outlet end, and for distributing the current of water over the whole area of the cylinder.

The water as it leaves the cylinder appears to have undergone only one change of any importance, viz.: a quantity of iron, ranging from one-tenth to one-fifth of a grain to the gallon, has been taken up, and to get rid of this the water has to be aerated, either by blowing in air or by merely allowing it to flow along a shallow open trough; in both cases, repose in a settling reservoir is necessary.

After a few hours—from two to six in most cases, much less in some—the greater part of the iron will have subsided to the bottom of the settling tank, usually as loose flakes of iron peroxide, associated with organic matter and other impurities, and the water is then ready for filtration. In most cases a rapid passage through a shallow layer of sand is all that is required to separate the iron, which remains as a fine layer on the surface of the sand, while the water issues from the filter free from iron, greatly ameliorated as regards organic matter, and practically deprived of microbes.

The revolving purifier was invented by myself in 1884-5 to meet the difficulties which arose in the working of the "spongy iron" filters at the Antwerp Water Works. These filters, which consisted of a mixture of "spongy iron" and gravel, choked up gradually and became almost inactive, after working for three years very satisfactorily as regards the purification of the water. They were replaced by the revolving purifiers, which have been in operation there ever since with most satisfactory results.

Similar results have been obtained on a practical scale at other places. Very exhaustive trials and analyses were made by the Compagnie Générale des Eaux at Boulogne-sur-Seine, near Paris, to test the system, principally with respect to the removal of bacteria and of organic matter, as estimated by per-

manganate of potash. The results obtained were thoroughly satisfactory, especially as regards bacteria.

These results are interesting, as illustrating the experimental stage of the working of the system. During the first two periods of working, for which the average percentage reduction of organic matter is given, the charge of iron in the revolving purifier, originally rather deficient, was further reduced by solution; during the third period the charge was made up to its full weight, and kept constant by periodical additions of iron. In the first period the average percentage reduction of organic matter amounted to 42 per cent.; second period, 40 per cent.; third period, 66 per cent.

In subsequent experiments the mean of analyses demonstrated 63 per cent. of improvement as regards organic matter, while the microbes sank from 4,080 per cubic centimetre to only 40.

PUBLIC HEALTH REPORTS.

Birkenhead.—Few places have grown so rapidly as this important town, which is now the second port on the west coast of England, and has become a formidable business rival even to Liverpool. Yet, within the memory of many living persons it was barely a village. The population of the borough at the April census, 1891, was 99,857 (48,354 males and 51,503 females), showing an increase of more than 15,000 inhabitants in the previous ten years. Area, 3,849 acres.

In the twelve months included in the Report for 1892 the number of births registered in the borough was 3,341, while the deaths amounted to 1,567, being at the rate of 19·6. Consequently, when compared with the other 32 great cities and towns of England, there were only 13 of these which had a lower death-rate than Birkenhead; thus contrasting very favourably with Liverpool, on the Lancashire bank of the Mersey, where the death-rate in 1892 was 24·7. For this difference the density of population would, in some measure, account, averaging 26·3 persons to the acre in Birkenhead, and 98·6 to the acre in Liverpool. The density of population in Liverpool is, it may be mentioned, greater than in any other of the large English cities and towns, the next two highest on the list being Plymouth, with an average of 58·3 persons to the acre, and London, with 57·1.

The proportion of infantile deaths (children under one year of age) to the births registered in Birkenhead in 1892 was 168 per 1,000, the average for all the 33 large cities and boroughs of England and Wales being 164.

The infantile mortality varies greatly in different towns, ranging from 123 in Croydon to 216 in Preston. It may be stated, as a general rule, that the infantile deaths average higher in towns where the employment of the mothers in factory work involves the absence of many of them from their infants during the whole or greater part of the day.

The zymotic death-rate for 1892 was equal to 2·27 per 1,000 inhabitants of all ages, the average for the 33 large towns being 2·64. Of these, taken individually, the two highest zymotic death-rates were at Salford 4·60, and Preston 3·90; while, at the other end of the scale, the two lowest were Norwich and Newcastle-on-Tyne, with 1·58 and 1·64 respectively. The deaths from the principal zymotic diseases in Birkenhead included 63 from measles, 59 from whooping cough, 57 from diarrhoea, 24 from fevers (22 from typhoid, or enteric, and 2 from typhus), 8 from scarlatina, and 6 from diphtheria. Measles prevailed epidemically for about two-thirds of the year, causing a direct mortality, as stated, of 63, while probably other deaths occurred indirectly due to this disease. Dr. R. Sydney Marsden, medical officer of health for Birkenhead, animadverts strongly upon the apathy and foolish notions which commonly exist on the subject of measles—such, for instance, as the wide-spread fallacy that it is desirable to expose children to the chance of infection, on the ground that all children must have it, and that the sooner they get the measles the better. Popular sanitary errors die hard, and this is one of the worst of them. As regards what are termed minor zymotics, *i.e.*, diseases less obviously infectious in their character, influenza headed the list with twenty deaths. Judging from the frequency with which this affection turns up in the reports of medical officers of health, it is too evident that, to use an Americanism, influenza has “come to stay.”

The total number of notifications of dangerous infectious diseases during 1892 was 1,966. As showing the relative mortality from these diseases, Dr. Marsden notes that about one in four of the known cases of diphtheria died, one in five of typhus, one in seven of typhoid fever, one in twenty-four of measles, and one in twenty-seven of the known cases of scarlatina.

We are pleased to learn from Dr. Marsden's report that the proportion of deaths uncertified by qualified medical practitioners is steadily decreasing. Last year uncertified deaths stood in the proportion of 0·45 per cent. of the total deaths, the rate in 1891 being 0·9, and 1890 and 1889 1·1 and 1·4 per cent. respectively.

The general operations of the sanitary department have been carried on unremittingly and thoroughly

during the past twelve months in every section, although the work of the department has been largely increased, owing to the new Acts of Parliament which came into force on January 1, 1892. The Health Committee of the borough are steadily working in the direction of doing away with the old insanitary system of ashpit middens, which are being gradually replaced by properly-constructed waterclosets and dry ashpits. Dr. Marsden rightly insists upon the great importance of having all ashpits under cover from the wet—at present, unfortunately, the exception rather than the rule—and of having them efficiently ventilated and provided with suitable doors and fastenings.

Overcrowding and cellar-occupation have also received a considerable amount of attention, with a view to their repression—a most important matter when we regard the greed, and the indifference to the health of their tenants, shown by the class of smaller property owners, and the helplessness of the lowest ranks of the poor.

The energetic meat and food inspector, Mr. Robert Wagstaffe, made, in 1892, no less than 433 seizures of unsound meat, amounting in weight to 116,284 lbs. Much of this was taken on the premises connected with the foreign meat wharf. During the twelve months eleven and a half carcasses of beasts, seven of pigs, and one sheep's carcase were seized and destroyed in consequence of being affected with tuberculosis; and several orders were granted by the magistrates for the destruction of tuberculous meat. Doubts having been expressed by various parties interested, on the score that the meat looked perfectly healthy, Dr. Marsden thought it desirable to put some of the meat to the test as to its infective nature, and Dr. Kanthack, of University College, Liverpool, kindly undertook a series of experiments. The conclusion at which Mr. Kanthack arrived, after performing a large number of experiments, was as follows:—

“Conclusion from these Experiments.—We see that meat, from tubercular animals, although it may *appear to be sound*, may nevertheless prove a source of infection when inoculated in a suitable form into susceptible animals. This is a well-known fact, and hardly required fresh experiments in confirmation. As to the danger of infection, it is certain that human beings may be infected on consuming the raw meat of tuberculous animals. Well cooked and prepared meat is harmless. The objection, however, to the sale of any meat of diseased animals is, that by this means the bacilli are carried into the houses and kitchens, and thus become (in many ways) a dangerous source of infection. I therefore fully endorse the view of Flügge, that the sale of meat of tubercular animals should be prohibited.”

In connection with the fever hospital for the borough, the question of making a charge for maintenance while

in that institution has been discussed by the Health Committee, and that body has not only arrived at the conclusion that the charge formerly demanded (14s. a week) was too high and absolutely prohibitive in cases occurring among the labouring classes, but that it was a source of public danger by compelling the majority of patients to be kept at home, thus becoming centres for the spread of infectious disease. They consequently determined to make no charge whatever other than in exceptional cases, an excellent and wise decision in the interests of the community. Birkenhead stands in need of a larger and better infectious diseases hospital, as will be at once seen when it is mentioned that 1,966 cases of infectious diseases were notified during the year 1892 to the medical officer of health, and out of this number only eighty-one were admitted into the fever hospital; in other words, the sanitary authorities were able to isolate only one in every twenty-four or twenty-five known cases of infectious disease. Steps are being taken to remedy this unsatisfactory condition.

The proceedings taken under the Sale of Food and Drugs Acts, 1875 and 1879, and the Margarine Act 1887, comprised the taking of eighty-eight samples during the year, viz.:—Butter 27, milk 39, lard 12, coffee 6, sal volatile and sweet spirits of nitre each. Of these, seven samples of butter and three of milk were reported to be adulterated. Prosecutions were instituted as regards six of the butter adulterations—five with margarine and one with the addition of 10 per cent. of water—and the three milk cases—5 to 15 per cent. of water. A conviction was obtained in every case, and penalties, with costs, were inflicted on the offenders.

The Insanitary Condition of the Regent's Canal was referred to at the last London County Council meeting. Dr. Collins, one of the representatives of the district through which the canal passes, asked when the Public Health Committee would report upon this matter; and Mr. Leon, the chairman of the Committee, explained that a valuable document had been drawn up on the subject and submitted to the local authorities and to the Canal Company. He added that, when these bodies had said what they had to say about it, the matter would be fully reported upon to the Council. *When?* repeats a correspondent (who appropriately signs his letter “Echo”) living near the Canal, who points out that at the same meeting of the London County Council, it was resolved that the summer recess should commence on August 1st and terminate on October 3rd. Our correspondent's question is an important one, having regard to the admitted insanitary condition of the canal, and the possibility of a visitation of cholera during the “summer recess,” some time after which, we presume, the Health Committee will report to the Council.

PATENT MEDICINES.*

By the EDITOR.

NO. X.—QUACK ADVERTISEMENTS AND TESTIMONIALS ;
MOTHER SEIGEL'S SYRUP ; CLARKE'S BLOOD MIX-
TURE, AND DR. SWAINE TAYLOR.

An American quack, who was ostentatiously boasting of his wealth in one of the chief hotels at Saratoga Springs, was addressed by an admiring auditor as follows :— " There must be a fortune in patent medicines." " I don't know," reflectively observed the quack ; " it isn't all profit—bottles cost money." Many persons would probably have added " and advertising " after " bottles." But the Yankee knew better than to mention this item, for he might as well have included his own mendacious tongue. He could not reckon advertising in the estimate of cost, for the plain reason that the more he spent in puffing his wares the greater would be the return in cash.

The amount of money spent on advertisements of quack medicines is astonishing. Thousands, tens of thousands, and hundreds of thousands of pounds are unhesitatingly launched upon this expenditure, the advertisers feeling certain of a profitable return for their outlay, and trading on the blind credulity of people who pin their faith on quack medicines, merely because they have read some glowing advertisement (more or less false).

The Anglo-Saxon race used to be regarded as the most easily duped in this respect—the readiest swallows alike of quack advertisements and quack medicines. But the " heathen Chinese " runs the Englishman and American close in this respect ; and, according to an article in the *Cornhill Magazine*, Chinese papers contain even a larger proportion of quack advertisements than English or American

periodicals. Moreover, the ingenuity of the " Chinese," when he turns " quackee," puts the " barbarian devils," as he would doubtless term his European or American charlatan *confrères*, completely in the shade. They can only puff, while the Chinamen blow whole gales of lying assertions. Take, for instance, an announcement in the *Shên Pao*, or *Shanghai Gazette*, of the grand " Fairy Recipe for Lengthening Life." " This recipe," says the advertisement, " has come down to us from a physician of the Ming Dynasty. A certain official " (this *certain* official is somewhat uncertain) " was journeying in the hill country when he saw a woman passing southward over the mountains as if flying." (The name of this wonderful " record breaker " is, unfortunately, not given. Could she have been a Chinese " Mother Seigel " ?) " In her hand she held a stick, and she was pursuing an old fellow of a hundred years. The mandarin asked the woman, ' Why do you beat that old man ? ' ' He is my grandson,' she answered, ' I am 500 years old, and he is only 111 ; he will not properly take his medicine, and therefore I am beating him.' The mandarin alighted from his horse, and knelt down and did obeisance to her, saying, ' Give me, I pray you, this drug, that I may hand it down to posterity for the salvation of mankind.' Hence it got its name," adds the veracious quack. Whatever may be thought of the existence amongst us of lineal descendants of Ananias, no one can, after this, express any doubt as to the probability that a contingent of them must have found their way across the Asiatic continent to the land of the Celestials.

Reading further, we learn that this fairy medicine " will cure all affections of the five intestines and derangements of the seven emotions " — Chinese physiology is as wonderful as Chinese physic — and that it will speedily and effectually relieve every ailment under the sun. Here are directions for its administration, the dose being equal to a quarter of an ounce : " Take it for five days, and the body will feel light ; take it for ten days, and your spirits will become brisk ; for twenty days, and the voice will be strong and clear, and the hands and feet supple ; for one year, and white hairs will become black again, and you will move as though flying. Take it constantly and all troubles will vanish, and you will pass a long life without growing old." The price per bottle—our readers must not put the value of this elixir at too many thousands of pounds—is about 3s. 3d. in English money. After this specimen of quack announcements we shall expect to hear a rush on the part of British

* Some of the articles constituting this series have already appeared in HYGIENE when published as a monthly magazine, and were reprinted in two volumes. But as one of these—Vol. I.—is out of print, we propose, at the request of many readers, to commence a new series, as much of the matter will doubtless be fresh to the great majority of the readers of HYGIENE in its altered form. New reports and analyses will appear from time to time. No. I. (May 13th) included :— Patent Medicines ; Patent Medicine Law ; Mattei's Electro-Homœopathic Remedies. No. II. (May 20th), Clarke's Blood Mixture. No. III. (May 27th), Clarke's Blood Mixture ; Chlorodyne and other Opiates. No. IV. (June 9th), Revalenta Arabica. No. V.—(June 16th), The History of Patent Medicines ; The Sequah " Prairie Flower " and Oil. No. VI.—(June 23rd), Holloway's Pills and Ointment. No. VII. (June 30th), Correspondence about Holloway and Mattei. No. VIII. (July 7th), Concerning Advertised Testimonials of Clarke's Blood Mixture. No. IX.—(July 14th), Allen's World's Hair Restorer ; Mexican Hair Restorer ; Singleton's Golden Ointment for the Eyes ; Rowland's Kalydor and Gowland's Lotion for the Skin ; Mrs. Anna Ruppert's Skin Tonic ; Mattei's Electricities.

patent medicine vendors to secure Chinese managers for their advertising departments, to spread their fame and increase the sale of their pills, potions, and plaisters.

There are pessimists who insist upon the fact that there is no time like the past, that men of the present day are degenerate, physically and mentally, when compared with those of bygone times. Certainly, in the matter of hard lying the quacks of other days could almost give points, judging by four advertisements taken from a newspaper published in the early part of the last century. The first is "an incomparable pleasant tincture, to restore the sense of smelling, though lost for many years; a few drops of which"—the tincture, we presume—"being snuffed up the nose, infallibly"—at what date, we wonder, was this word first adopted by quacks?—"cure those who have lost their smell, let it"—the loss is meant, we suppose—"proceed from what cause soever." This marvellous stuff, at 2s. 6d. a bottle, was to be obtained only at Mr. Payne's toyshop (at the period of which we are writing toyshops were not, as now, limited to the sale of toys, but were a kind of bazaar or emporium for many articles) at the "Angel and Crown, in St. Paul's Churchyard, near Cheapside." No. 2 was "an admirable confect, which assuredly cures stuttering or stammering in children or grown persons, though ever so bad, causing them to speak distinct and freely without any trouble or difficulty." The advertisement concludes with: "Its stupendous effects are really wonderful," not omitting to mention that the confect can be secured, at a reasonable charge of half-a-crown a pot, at Mr. Osborn's toyshop, at the Rose and Crown, under St. Dunstan's Church, Fleet-street. The third preparation is a specific for "loss of memory or forgetfulness, certainly cured by a grateful electuary, peculiarly adapted for that end; it strikes at the prime cause, which few apprehend, of forgetfulness, makes the head clear and easy, the spirits free, active, and undisturbed, corroborates and revives all the noble faculties of the soul, such as thought, judgment, reason, and memory, which last in particular it so strengthens as to render that faculty exceedingly quick and good beyond imagination, thereby enabling those whose memory was before almost totally lost to remember the minutest circumstance of their affairs, &c., to a wonder!" Mr. Payne retailed this miracle at 2s. 6d. a pot. What a pity it seems that it cannot now be got for love or money in these times of fierce competitive examinations! What an excellent and delicately suggestive present it would have been at Christmas, accompanying bills and "accounts

delivered" sent out to long-winded debtors! No. 4 advertisement is that of "an assured cure for leanness, which proceeds from a cause which few know, but easily removed by an unparalleled specific tincture, which fortifies the stomach, purifies the blood, takes off fretfulness of the mind, occasions rest and easy sleep, and as certainly disposes and causes the body to thrive and become plump and fleshy, if" (was this *if* a sign of some mistrustfulness, or an artful bit of hedging?) "no manifest distemper afflicts the patients, as water will quench fire. It is also the best remedy in nature for all chronic diseases that take their rise from a bad digestion in the stomach, which this specific tincture infallibly rectifies, and thereby cures. It is pleasant to taste"—so are many undoubted dietetic cures for leanness—and that universal philanthropist of the last century, Payne, literally gave it away at his toyshop, with directions for use, charging only the ridiculously inadequate sum of 3s. 6d. a bottle. A reference to the pages of the London Post Office Directory discloses the fact that innumerable societies, occupying columns of small type, exist for almost every charitable object, dispatching missionaries here, there, and everywhere, sending pocket-handkerchiefs to the Polynesians, nicknacks to New Guinea, samplers to Sarawak, lanterns to Labuan, female doctors to the Fijians, and so on; surely a sufficient sum could be raised among the credulous to constitute an exploration fund, so that a search could be organised for Payne's prescription books.

"There is nothing new under the sun," exclaimed the ancient philosopher; and "History repeats itself" has grown into a recognised axiom. It is consequently no matter of surprise to find that a modern counterpart of what for distinction's sake we will call Payne's No. 4 exists in the widely advertised nostrum known as Mother Seigel's Syrup. Payne asserts that "bad digestion of the stomach" is the root of all diseases; while Mother Seigel, or rather the proprietary trading in that name, insists, in a pamphlet lying before us, that "there is only *one* real disease, indigestion and dyspepsia?" We do not wish to be too censorious, otherwise we might suggest that the conjunction *and* in this quotation destroys the force of the remark that "there is only *one* real disease" ("*one* in italics too), but perhaps the author of the pamphlet meant to say "*or*." Whichever he or she intended to say, we say "*Humbug*." Elsewhere in the same pamphlet the writer speaks of "the intelligent persons who own these medicines." We have not the same opportunity

—nor do we desire it—of examining into their or their writer's intelligence, that we have of analysing their stuff; but, in face of the positive assertion that there is only one disease, we cannot wonder or complain, as the writer appears to do, that "there is more or less of an impression upon the minds of some people" (the intelligent owners excepted, of course) "that statements as to the merits and effects of popular medicines should be received with a degree of allowance." Very prettily put, we must say. Now, when it is so positively asserted that there is only one disease, is it quite consistent with such a statement to issue with each bottle of syrup a broadsheet containing an account of "the strange and prevailing disease of this country," printed in so many languages, from Arabic down to Turkish, that "all countries" would have been nearer the mark? "Prevailing" certainly conveys the idea that from the writer's point of view other diseases may and do exist, though not to the same extent as that under discussion. Further, after enumerating a whole host of symptoms, "all in turn, present,"—enough, as an American would say, to make a man mad on swallowing any nostrum, however nauseous, so that he may escape at least some of them—the writer goes on to say that "medical men have mistaken the nature of this disease. Some have treated it for" (query, "*as*") "a liver complaint, some for dyspepsia, others for kidney disease, &c., but none of the various kinds of treatment have been attended with success." None! Well, that is a poser; for if, as the writer has elsewhere told us, there is only one disease, and that disease dyspepsia, it is singular that medical men should all have failed in their diagnosis when they treated the patient—not the disease, as the writer has put it—for dyspepsia. But a ray of intelligence has just darted into our mind, although we are not proprietors of any patent medicines. Perhaps the writer is not so particular, after all, in his desire to inculcate the doctrine that there is only one disease as he is to impress upon his readers that there is only one remedy for all diseases, and that that remedy is Seigel's Syrup. The medical men whom he has so unsparingly and indiscriminately attacked, in the cause of Truth (and Seigel), omitted to give this remedy to their unfortunate patients; hence, he wishes Seigel's customers to infer, arises the failure to effect a cure in every instance.

Our readers must be getting into a state of feverish anxiety to learn the composition of this wonderful medicine, this "Nature's secret," as the Seigel pamphleteer modestly styles it in the panegyric with

which he introduces a number of testimonials from persons who, "of their own accord" (the pamphlet does not enlighten us as to whether also at their own expense), have come forward to make declarations before magistrates or commissioners (not such a remarkable or difficult thing) "with no other motive than the noble one of letting other sufferers know where help is to be had in the time of need."

Mr. Stokes, public analyst for Paddington and other important metropolitan districts, has unveiled "Nature's secret," and we present his report:—

ANALYTICAL LABORATORY,
Vestry Hall, Paddington Green, W.

DEAR SIR,—On September 7 I received from you a sample of "Mother Seigel's Syrup." This was in a four ounce bottle, in its unopened wrappers, and still sealed with the unbroken stamp of the Inland Revenue bearing the words, "A. J. White, Limited, London."

This sample I have now carefully examined, chemically and microscopically.

I find it to be a complex mixture containing treacle, borax, aloes, capsicum, and liquorice.

The active ingredient is aloes, of which I extracted from the 4 oz. mixture 120 grains.—I remain, yours faithfully.

ALF. W. STOKES, F.C.S., F.I.C.
(Public Analyst.)

Aloes to right of them, aloes to left of them,
Aloes—

We must apologise to our readers for thus abruptly bursting into a parody of Tennyson's beautiful verses. Our emotion was for the moment too great to be expressed in plain prose. Perhaps, too, our writing on patent medicines brought the Valley of Death of Tennyson's poem into our mind. We had just come across an old acquaintance, whose name has repeatedly occurred in this series of articles; we will not say a *dear* old acquaintance, as it is not an expensive drug. Moreover, we felt that we were getting nearer to the discovery of the Philosopher's Stone, the universal panacea as offered to suffering humanity by the principal patent medicine proprietors, "intelligent persons," without doubt (*vide* the Seigel pamphlet). If we must not break out into verse, we would beg at least the favour of being permitted to indulge in capitals. ALOES, "in the name of the *profit*, ALOES," ALOES heads the poll. As those of our readers who have perused our previous articles will remember, aloes enters largely into Holloway's pills; under the *alias* of "Prairie Flower," it forms the chief component of Sequah's mixture; and now we learn, on the authority of Mr. Stokes, that aloes is the active ingredient of Mother Seigel's Syrup. We may here note a peculiar fact which scarcely goes to support the "intelligent" theory of the Seigel pamphleteer,

namely, that there seems to exist in the minds of patent medicine proprietors a delusion that the growth of aloes is confined to the United States, whereas nearly the whole supply is imported from the West Indies.

It is a curious circumstance that when a common commercial substance like aloes is required for manufacturing a quack nostrum, such great care and expense are alleged to be necessary for the cultivation of the plant and the preparation of the drug. The makers of the Sequah Prairie Flower Mixture profess to ransack the extensive woods and plains of the Far West in search of the vegetable extract (aloes) used in its composition; and the proprietors of Seigel's Syrup print on their wrappers the following statement:—"The manufacturers of this medicine have been for fifty years the largest gatherers of roots, barks, and herbs in the world. Their botanical gardens are the most extensive in America." Why, one may reasonably inquire, do these "intelligent persons" take the trouble to gather and grow thus largely such simples as aloes, capsicum, treacle, and liquorice, which could be readily purchased in tons of any wholesale druggist? And, by the bye, we would remark that, notwithstanding a fair knowledge of the United States, as the result both of personal travel and of reading, we are absolutely ignorant of the locality in which Mother Seigel's extensive botanical gardens are situated. The address (America) given on the wrappers is decidedly as much too vague as many of the assertions thereon are much too positive.

CLARKE'S BLOOD MIXTURE.—ADVERTISED TESTIMONIAL from the late Dr. Swaine Taylor, F.R.S.

In our issue for June 23 we published an important communication on this subject from our esteemed contributor, Dr. H. C. Bartlett, the well-known analyst, throwing grave doubts on the genuineness of this widely-advertised testimonial. Numerous letters expressing a similar opinion of disbelief have reached us from readers of *HYGIENE*. Subsequently, as stated in *HYGIENE* for July 7, we posted a registered letter to the proprietors of Clarke's Blood Mixture, enclosing a copy of Dr. Bartlett's communication, and offering the use of our columns for their explanation of the mystery involved in the posthumous use of an undated and uncertified testimonial bearing Dr. Swaine Taylor's honoured name. Either through inability or unwillingness, no response has been made. On the eve of going to press with our current number we have received a second still more important communication from Dr. Bartlett, who, we much regret to say, has been and is seriously ill. The publication of this communication is necessarily deferred until next week. Meantime we give the proprietors of Clarke's Blood Mixture an opportunity of answering the following queries:—1. When, where, and under what circumstances did Dr. Swaine Taylor give the alleged testimonial? 2. By whom was this signature witnessed? 3. When and where can the original be inspected? Failing satisfactory replies to these questions, we shall have some remarkable revelations to make in our next number.—Ed. *HYGIENE*.

*LONDON GOVERNMENT: AS IT IS AND AS IT SHOULD BE.**

By HARRY WILKINS, Barrister-at-Law, Vestry Clerk of St. James's, Westminster.

(Concluded from page 138.)

Thirdly.—There is no pressing need to interfere with the City, although, if the ground were clear, nobody would think of creating a city within a city. But the traditions of centuries are not to be swept away lightly, and the Livery vote, which is by some thought to be an anachronism, is to my mind a considerable source of strength to the City and a guarantee for its good government, from the very fact that it brings a freshness of thought and idea to bear upon civic matters, because a very large proportion of the Livery is not connected with the City either by residence or trade. Again, the City is in advance of the rest of London as regards its police and markets. We should rather, I think, aim at bringing London up to this standard than desire to drag the City down to a lower level. No doubt the time will come when London will be one undivided whole for those concerns in which London as a whole is equally interested; but I am afraid that any premature attempt at unification will not only cause the arrival of this time to be delayed, but will lead to the dissipation of energy which might be much more profitably employed in strengthening more purely local government.

Fourthly, as to local bodies. I have always felt that Mr. Ritchie started at the wrong end when he created a strong County Council before reforming local administration. From 1855 downwards steady progress has been made in this direction, it is true, but the diversity in the local government of London is surprising.

In the making and collecting of rates, for instance, we find that in some parishes the assessments are made by the churchwardens and overseers of the poor, subject to confirmation by an assessment committee in some cases appointed by the vestry and in others by the guardians. The rates are made sometimes by the churchwardens and overseers, sometimes by the vestry, sometimes by a combination of the two. Not infrequently the guardians appoint the collector of the poor rate, while the overseers appoint the collector of the other local rates, thus duplicating the machinery without the slightest benefit, but at much additional cost and with considerable inconvenience to the ratepayers.

All this divergence in practice should be abolished, and every unit of area governed on precisely similar lines, so that if a man occupies property in two different

parishes, or moves from one to another, he may live under the same rules in each, and not have to learn to what special conditions he may be subject. By a beautiful fiction of the English Constitution everybody knows the law of the land, but even a lawyer may be floored by a local Act of Parliament peculiar to a single parish. All local legislation should therefore be repealed and replaced by the general law. But more than this is needed. Local government should be systematised, useless bodies should be abolished, and a municipal spirit fostered in every unit of administration. What this unit of administration should be I will not stay to discuss. It might be the parish, or the poor law union, or the Board of Works district, or a new area of sufficient size to justify the creation of a municipal corporation, but small enough to admit of the governing body keeping the area as a whole under efficient observation. My predilection is in favour of a municipal corporation, such as the whole of Westminster—an historic city in name only at present—but the point is arguable.

Everything but pauperism should be dissociated from the workhouse. Guardians should therefore be relieved of all duties relating to vaccination, the appointment of officers and provision of offices for the registration of births, deaths, and marriages, and similar matters. All these duties should be transferred to the local sanitary and municipal authority, as relating to the public health and civic government.

Churchwardens should be relegated to the church and appointed by the minister and congregation.

Overseers should cease to be appointed, as also should trustees of the poor, governors and directors of the poor, and similar bodies, whose duties might easily be performed by the municipal body at present represented by the vestry.

Then other authorities should be consolidated. For instance, vestries, bath commissioners, library commissioners, burial boards, and charity trustees might cease to be, and their duties be carried out by the municipal body through committees, subject to the control of the body appointing them.

This brings me to the question, How should this municipal body be elected, of whom should it be composed, and what should be its duties?

I may be thought to be desirous of putting back the hand of the clock, but I would permit this local municipal body to be elected only by those who directly contribute to its expenses. Constructive householders, *i.e.*, tenants of parts of houses in which the landlord does not reside, and lodgers, should not vote in questions of administration involving the expenditure of moneys to which they con-

tribute only indirectly, and a fixed proportion unalterable by any ordinary increase in the rates.

The mode of election should be by ballot, similar to that adopted at Parliamentary elections, and there should be neither plural nor cumulative voting. The election should, however, be preceded by a nomination at a ward meeting. It is the fashion in some progressive circles to sneer at the system of electing vestrymen as antiquated. It is certainly ancient, dating from Saxon times, but I cannot conceive a better mode of discussing the qualifications of a candidate for a local board than at a meeting of the ratepayers of the ward. It is much to be preferred to the system of nominating members of Parliament and County Councillors.

As to the qualification of members, I do not think any beyond occupation, rating, and payment of rates need be required.

The duties of the local municipal body should include everything relating to the locality, the administration of the poor law alone excepted. This would make a tolerably long list:—Assessment of property, making and collection of rates, including in them the sums required by all spending bodies, lighting, paving, drainage, cleansing, public health, including vaccination, &c., baths, libraries, burials, and charities.

It would be convenient for the unit of administration to be the same for poor law and municipal purposes. In that case there would be two local elections only in each unit of administration—one for the Board to administer the poor law alone, and one for a municipal body for all other local concerns.

As regards the election of guardians of the poor, I should substitute election by ballot after open nomination in a ward meeting for the present system, and abolish plural voting, also, provided the electorate is confined to direct ratepayers, the rating qualification of even £5.

The School Board I should like to see superseded by ten or twelve district boards largely fed from a common fund, on the model of the metropolitan common poor fund. I believe a healthy rivalry would result to the benefit alike of popular education and the pockets of the ratepayers. This alteration is probably distant; in the meantime cumulative voting ought to be abolished at once and for ever.

I may, perhaps, be expected to touch upon questions of finance, such as the suggested direct assessment of ground rents, the imposing of a municipal death duty, and the equalisation of rates. I have formed my own opinion on all these points, and am prepared to state and defend it at the proper time. They are, however, matters

relating to ways and means rather than to the system of local government. I will, therefore, content myself by saying that any shifting of the burden usually adds to it in the long run in one form or another, and that any interference with natural laws cannot produce lasting good.

To sum up, my suggestions for reform include a slight re-arrangement of the duties of the County Council and the Asylums Board, an alteration in the constitution of the latter, the adoption of one uniform system of nomination and election of members of all directly elected local bodies, the adoption of one register, one qualification for membership, and one system of election for local bodies; the abolition, with a feeling of deep gratitude, of all useless survivals of the past, the repeal of all purely local legislation, the transfer from the local poor law authorities of all but poor law duties; and the reconstitution of the vestries with wider powers and greater responsibilities, under a title of greater dignity, and better representing the character and scope of their duties.

Time will not admit of my touching upon several matters of detail. The utmost I can hope is that I have laid the foundations for a businesslike system of local self-government, upon which others may be able to build a superstructure of strength and beauty adapted to our vast and magnificent metropolis.

OLD MEDICAL ANECDOTES.*

A CURIOUS MISAPPREHENSION.—Among the many whimsical events to which the South Sea speculations gave rise in France, the following odd mistake is recorded. A celebrated physician, named Chirac, was called to attend an invalid lady just as he had heard the startling news of the further lowering in the price of the much-vaunted stock, which he held to a large amount. Full of this subject, he entered the lady's room, and, feeling her pulse, muttered to himself, "Ah! Heavens! How it sinks! Down, down, down!" Greatly alarmed at these ominous words, the poor lady screamed out, rang her bell, and summoned all her people about her. "I am a dying woman," she exclaimed, in tears; "the doctor has told me that my pulse is sinking down to an extreme." "Pardon me, madame," said the physician, "I was speaking of the South Sea stock. Your pulse is in an excellent state, and you will be well by to-morrow morning."

INTEMPERANCE IN HIGH LIFE.—The ladies in the Court of the great Louis XIV. were far less scrupulous in point of temperance than their descendants. The

Duchess of Orleans, in a letter dated May 21, 1716, wrote: "The Duchess of Bourbon" (daughter of Madame de Montespan) "can drink a vast deal without having her senses disordered. Her daughters wish to follow her example, but they have not heads strong enough to bear so much liquor." The editor of the Duchess's letters remarks that about this period the practice of hard drinking prevailed to a great extent amongst women of the highest rank.

HOW ANTIMONY GOT ITS NAME.—The discovery of the medicinal powers of antimony was due to the celebrated Basilus Valentinus, who, finding that it had the property of fattening pigs, tried it (through what connection of ideas it is impossible to say) on an establishment of monks. Unluckily, instead of improving the condition of these holy men, it killed them off by dozens, when it derived the name of *Anti-moine*. Paracelsus attempted, notwithstanding this misadventure, to bring this mineral into credit; but he, too, failed, and it was not until a much more recent period that its remedial properties were universally admitted.

THE ITALIAN ABERNETHY.—Andrea Baccio, a celebrated Florentine physician, was remarkable for the bluntness of his speech. On one occasion, very much against his inclination, he was induced to pay a professional visit to a frivolous old lady of quality. After having to go through a good deal of ceremony, he felt her pulse, and asked her how old she was. She told him "above fourscore." "And how long *would* you live?" said Baccio, letting go of the lady's hand, and making the best of his way out of the house.

"THE HAIR OF THE DOG THAT BIT THEM."—The common jocular advice given to persons who are ill from the effects of too much indulgence overnight is "to take a hair of the same dog that bit them"—i.e., to take a dose of the same liquor. This saying is probably derived from an absurd mode of treatment recommended for persons who have been bitten by a mad dog, in an old French treatise, entitled "*La Médecine aisée*," written by the king's physician, and published at Paris, in 1719. At page 103, we read, "*Pour la cure de la plaie mettez dessus de poil du chien qui l'a mordu*." (For the cure of the wound, put over it some of the hair of the dog that bit the patient.)

French Wines.—The exceptional summer which we have had has produced good results in the vineyards of the Champagne and Burgundy districts, and it is expected that this year's vintage will be one of unusual plenty and quality.

* Taken from an old French work.

HYGIENIC NOTICES.

THE KNEE CUSHION CRADLE.—Everyone who has seen much practice in the out-patients' department of a large hospital must have noticed the frequency of cases of synovitis of the knee joint, a form of inflammation known by the common name of "housemaid's knee," in consequence of its occurring almost entirely among domestic servants and other women who have much kneeling to do in scouring steps and washing floors. The knee-joint is one of the largest in the body, and is also one of the most exposed to injury from accidental blows or from pressure.

An excellent little invention, devised for the purpose of preventing the occurrence of this frequent affection, productive of so much pain and misery, and even disabling many women from earning their living, has been recently brought under our notice. It consists of a flat block moulded at the centre so as to receive the knee, which rests upon and is laterally supported by cork let into the hollow. Consequently the front of the knee rests upon an elastic cushion of cork, while at the sides it is held in position. The knee cradle, as it is termed by the inventor, is furnished with rockers, which communicate a rocking, pivot motion, enabling the person using it to turn to the right or left without risk of striking the knee against the floor, and thus affecting the joint. Moreover, the cork being a dry, warm substance, there is no chance of contracting rheumatism from the wet flooring.

It is an admirable notion, well carried out, and thoroughly efficient, another very great point in its favour being the very low price at which the apparatus is sold, placing it within the reach of everyone. The manufacturers and sole agents are Messrs. Crowden and Garrod, of 62, Southwark-street, London.

NEWS AND NOTES.

The Value of the St. John's Ambulance Teaching was recently shown in connection with an attempted suicide at Danbury, an Essex village. The daughter of a baker took a quantity of sulphuric acid with suicidal intention. A carpenter named Applebee, and a man in the baker's employment named Potter, both of whom had attended the Society's lectures, administered the remedies which they had been instructed to employ in such an emergency—viz., whitening and water, salad oil, and salt and water—to such good effect that when the doctor arrived from Great Baddow, some three miles off, he was able to pronounce the treatment so satisfactory that nothing remained to be done. The girl has since then completely recovered.

The Cholera.—The Egyptian authorities have issued a notice putting all ships arriving from France under a week's quarantine in consequence of the arrival of a steamer from Marseilles with a suspicious case on board. In the course of only three days 20 deaths from cholera have occurred among the pilgrims located at the quarantine

station at El Tor. From Russia news has been received that during the past week there were 311 cases and 103 deaths from cholera in the government of Podolia, 33 cases and 12 deaths in Orel, 45 cases and 20 deaths in Bessarabia, 18 cases and 10 deaths in Kherson, 8 deaths in Moscow, and numerous deaths in other Russian provinces.

* *

Worse than Useless.—St. George the Martyr parish, Southwark, was almost the first metropolitan parish to erect a hot-air disinfecting apparatus in accordance with the Sanitary Act of 1866. Upon examining it lately, Dr. Waldo, medical officer of health for Southwark, found it in such a defective state as to merit the description at the head of this paragraph, and another apparatus will shortly be erected having all the recent improvements. Dr. Waldo has also recommended the use of two handcars—distinguishable by being painted different colours—the one for the collection of infected articles, the other for the distribution of the disinfected ones.

* *

City of London.—Dr. Sedgwick Saunders, medical officer of health and public analyst to the City of London, reports favourably on the water derived from artesian wells sunk at Queen Victoria-street, Broad-street House, the Manchester Hotel (Aldersgate-street), and the Artisans' Dwellings. The water from these various sources is identical in character, showing that the wells are all supplied from the same strata; and, still more to the point, it is excellent in quality, and thoroughly suited for domestic purposes. One peculiarity which Dr. Saunders notes is, that all the supplies from these deep wells have the same temperature all the year round.

* *

The Norfolk and Suffolk Broads.—The mention of these favourite summer resorts, in the article on Lowestoft (HYGIENE, June 16), has brought us numerous inquiries and requests for further particulars. We have much pleasure in referring our correspondents to an excellent guide-book by Mr. Christopher Davies, a new edition of which has just been brought out by Messrs. Jarrold, of Norwich.

* *

Milk Adulteration: Dishonesty made Easy.—It was stated for the defence, in a case of alleged watering of milk recently heard at the Tottenham Petty Sessions, that the railway company would not allow milk to be sent in locked cans, because their servants might require to measure it. Without throwing any imputation upon the railway servants, this rule is one very likely to be taken advantage of by dishonest persons, who are thus afforded full opportunity of tampering with the milk during transit from the farmer in the country to the dairyman in London. Other means of estimating the amount might be readily devised—by weight of can and contents, for instance. As it is, thievishly-disposed persons have all their own way, and many a respectable farmer or tradesman is exposed to unmerited prosecution, obloquy, and loss of business.

An Eastern Story, à propos of panic during the prevalence of epidemics, runs as follows:—A man going out of a town met the spirit of Cholera, who told him that it was fortunate that he had left when he did, as his (Cholera's) mission was to destroy all the people in the place. The man begged him to be merciful. Meeting Cholera some time afterwards in a different part of Persia, the man ventured to address him upon the subject. "I killed only a hundred of the inhabitants," said Cholera. "But more than 5,000 people died in the town," interposed the man. "True," replied Cholera, "I killed only 100, and fear killed the rest."

* *

A Good Regulation.—One of the bye-laws of the Glasgow Corporation stipulates that, in making new streets, where buildings are run up three storeys high, the street must be made at least sixty feet wide, from kerb to kerb, so as to insure a proper amount of daylight.

* *

The British Institute of Public Health opened their Congress at Edinburgh on Thursday morning, July 27, with an address from the president, Dr. Henry D. Littlejohn, medical officer of health for Edinburgh. The proceedings will not terminate till Monday, the 31st instant.

ANSWERS TO CORRESPONDENTS.

A Sanitarian.—The title "The Father of Sanitary Science" was one by which Sir Edwin Chadwick was designated. He was born at Longsight, near Manchester; came to reside in London early in life; was a barrister by profession, but never practised, and maintained himself by his pen, writing and reporting for the Press, until his public duties monopolised his time and attention. He died at his house, near Richmond, Surrey, on July 5, 1890, in the ninety-first year of his age.

C. W.—The weekly issue of *HYGIENE* began with the commencement of Vol. VII. (May 13). We should recommend you to make your subscription date from that period, as some of the earlier numbers of Vol. VII. are already becoming scarce, through the great demand for them.

Dr. Richards.—We cannot advise without seeing the surveyor's report. Let us have that for perusal, and we will then write privately (on your giving full address), to save time in the matter.

M. O. H.—The patent is of no practical value. You had better wait for further experiments.

A Student.—You are quite right. The oldest hospital in London is that of St. Bartholomew, which was founded by Rahere in 1102.

B. J.—We shall be glad to receive a copy of the report.

Rusticus.—Dr. Poore's book is published by Messrs. Longman and Co., Paternoster-row, London.

J. M.—See the chapters on Medical Geography in Dr. Aitken's "Science and Practice of Medicine," 2nd volume.

Dr. Lent (Cologne).—See answer to *C. W.* *HYGIENE* is supplied post free to Germany for twelve months for 6s. 6d. prepaid subscription.

Tenant (Portsmouth).—Give notice by registered letter to your landlord of the insanitary condition of your house, and enclose a copy of the inspector's report. If he should disregard that, you will be justified in vacating the place without giving further notice.

Mr. Boyd.—The theory you mention was exploded long ago.

East Anglian.—The Sanitary Exhibition at Norwich was in October, 1873 (not 1875, as you write the date). It was held under the auspices of the Social Science Association, which met at Norwich at the same time. A similar exhibition of sanitary, educational, and domestic appliances had been held, in connection with the Association's Congress, at Leeds in 1871.

Density of Population—concerning which "Querist" writes—has an undoubted influence on the death-rate of a district. Some statistics published by Dr. Gairdner showed that the ratio of deaths is nearly doubled in the densest as compared with sparsely-peopled districts:—

No. of inhabitants per square mile.	Annual mortality per 1,000.
56	15
202	20
1,216	24
2,900	27 and upwards.

A Would-be Author.—Write to the publishers of *HYGIENE*, Savoy House, 115, Strand. They could bring out your book as well as, and cheaper than, most publishing firms.

F. B.—Consult any qualified medical practitioner in your locality. There is little difficulty in the treatment of your case. The quack remedy you have been taking is worse than useless; it is positively injurious.

EDITORIAL AND PUBLISHING NOTICES.

EDITORIAL.—The Editor begs to express his thanks to numerous correspondents, and to state that he will be pleased to receive any articles or correspondence coming within the scope of *HYGIENE*, reports of medical officers of health, items of general or local sanitary interest, newspapers (marked at the part to which it is desired to draw attention), &c.

PUBLISHING.—The terms of subscription not having been raised, although under the new arrangement fifty-two numbers instead of twelve will be sent out annually, all subscriptions now running will continue good for the original period.

HYGIENE will be forwarded, post free, to all parts of the Kingdom, and to all countries within the Postal Union (including the United States, Canada, France, Germany, Belgium, Italy, Austria, Hungary, Spain, Portugal, Switzerland, the Netherlands, Russia, Denmark, Sweden, and Norway), on the following prepaid terms:—Twelve months, 6s. 6d.; six months, 3s. 6d. Subscription terms for Australia, India, the Cape, and all other parts of the world can be ascertained by inquiry at *HYGIENE* office.

ADVERTISERS are requested to bear in mind the greatly increased circulation of *HYGIENE*, with its weekly issue and reduced price. In addition to the large, regular circulation, many thousands of copies are distributed annually to sanitary officials, medical men, private addresses, public libraries, clubs, hotels, &c.

HYGIENE,

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CHOLERA IN RURAL DISTRICTS; WHAT TO DO IN THE EVENT OF AN EPIDEMIC.

By J. C. THRESH, M.B., D.Sc., Medical Officer
to the Essex County Council.

It is somewhat singular that neither in the archives of the Local Government Board nor in the various published accounts of the cholera epidemics which have occurred in this country has any detailed account been given of the outbreaks amongst strictly rural communities. This, however, is accounted for by the fact that during periods of epidemic prevalence the disease has always shown such a marked preference for urban districts that little attention could be given to the comparatively trivial outbreaks in our smaller towns, villages, and hamlets. At the time, also, when the more serious outbreaks occurred, the Public Health Service had not reached any high degree of organisation, and in but few rural districts were there medical officers of health or other trained observers to investigate the origin, and record carefully the conditions which lead to the dissemination of the disease. That cholera does show a marked preference for the larger towns, that is for the more densely-populated districts, is well shown by certain figures given by the Registrar-General in his report for the year 1849. The result, he says, is striking. 46,592 of the 53,293 deaths from cholera in 1849 occurred in 134 of 623 districts, or in less than one-seventh part of

the area of England and Wales, among four parts in ten of the population. In 85 districts there was no death from cholera, and there was only one town of any magnitude (Hereford) in the 85. The other districts are made up of villages or small towns. But, notwithstanding this, it is a mistake to think, as I find many do, that should cholera again visit this island the rural districts are practically exposed to no risk, and that there is no need to trouble about precautionary measures. The conditions which lead to the dissemination of the disease exist in our villages as well as in our towns—nay, since the last serious visitation in 1866 the sanitary condition of the towns has received so much more attention than the sanitary condition of the rural districts that it is not at all unlikely that in any future epidemic its ravages will be more disastrous in the villages than in the urban districts. All the knowledge we have acquired from the study of cholera epidemics, both abroad and at home, only tends further to confirm the opinion expressed by Sir John Simon over 30 years ago. Cholera, he says, “derives all its epidemic destructiveness from filth, and especially from excremental uncleanness; this, of course, may be iterated and reiterated with new and newer illustrations.” In 1866 he adds, “New knowledge neither permits me to express myself less strongly on the subject, nor enables me to express myself more strongly than I have done even years and years ago.”

That excremental uncleanness can be active in producing disease in villages as well as in towns is too well known to be dealt upon here, but on

account of the smaller number of inhabitants, the freer access of sunlight and fresh air, outbreaks of such filth diseases as cholera are rarely so destructive in rural as in urban districts. When circumstances are favourable, however, cholera may cause great mortality even in a village. As an example, take the only village outbreak reported upon by an inspector of the Local Government Board, that at Pill, near Bristol. In 1866 about 47 cases of cholera occurred here between October 21st and November 19th, resulting in 16 deaths. Water was derived from a stream, two pumps, and a well. All were liable to pollution; in fact, when chlorinated lime was thrown on a muck heap near one of the pumps it "instantly furnished chlorinated water." "Pill," says Dr. Buchanan, who made the inspection, "is wholly unpaved and intensely filthy. Human excrement, ash heaps, vegetable refuse, and every sort of dirt meet the eye at every turn." Here were all the conditions which Sir J. Simon says "are for us the causes of cholera. Excrement-sodden earth, excrement-reeking air, and excrement-tainted water." In 1866 this outbreak at Pill, though it happened to be the only one reported upon by an official inspector, was only one of many which occurred in our rural districts, as is proved by reference to the Registrar-General's report for the cholera years. In the village of Steeple (pop. 500) in one of my districts 13 deaths occurred between September 25th and October 30th, 1849. This village in proportion to its size contains a greater number of small cottages with only one bedroom than any other with which I am acquainted. The sanitary condition has been much improved during the last four or five years, but I have no doubt that it very much resembled Pill at the time when cholera was prevalent. In the report for 1849 one finds on almost every page some sub-registration district with only from 4,000 to 6,000 inhabitants, in which the deaths from cholera were numerous. The following may be taken as examples:—

	Population.	Deaths from Cholera.	Deaths from Diarrhoea.
Chertsey	6,350	35	3
Hayes	6,527	16	12
Prittlewell....	4,042	41	17
Rochford	3,986	20	5
Great Wakering	2,545	35	1
Litcham	5,456	20	1
Docking	5,376	17	1
Bromham.....	4,994	25	6
Britford.....	4,897	17	14
Chesham	5,811	43	—
Antony	6,568	199	12

Usually in these cases there is a note to say that the majority of the deaths occurred in one or two particular parishes. A brief account of one outbreak in a country village in Wiltshire, written by the vicar, is given. The disease was definitely limited to four cottages, which he says were known to be very much overcrowded. The cottages were "ill ventilated, badly drained, and with stagnant pools near them, the water of which was used for culinary purposes and generally for drinking, each cottage consisting of one living room and one sleeping room, and contained six to nine persons. In these four cottages, thus containing several of the worst evils of a populous town—overcrowding, foul drinking water, and noxious inhalations—no fewer than 16 cases of developed cholera and seven deaths took place. In three of the cottages every individual was attacked except the husband in each family. No other cholera attacks occurred in the village, though bowel complaints were general."

The effect of overcrowding and general filth conditions is well exemplified also in an outbreak which occurred amongst the hop pickers at East Fareleigh. One farmer employed about 1,000 hands. These were packed into small, ill-ventilated compartments, and drank water containing the soakage of cow yards and human filth; 200 of the hop pickers suffered from diarrhoea, 97 had cholera, of which number 46 died. On the same farm 34 hop pickers died from cholera in 1834. At another farm, where the first fatal case occurred, but where the accommodation was extensive, there was no other death.

If we refer to the most recent outbreaks (so well described by the special correspondent of the *Lancet*) which have recently occurred in France, we find it is but a repetition of the old, old story. Small, overcrowded, dirty cottages; drainage defects or absence of all drains, and the ground saturated with slops and filth; water derived from streams or shallow wells liable to pollution; the introduction of a case of cholera followed by a more or less sudden and extensive outbreak. It is, however, interesting to note that, writing on March 4th, the above correspondent says: "The most important epidemic, when taken in proportion to the population, is that of Grand Fort Philippe, a fishing village near Gravelines, which has only 2,700 inhabitants. It is a poor, miserable place, consisting of little cottages, built anyhow and anywhere, without plan or order." Then after describing the usual filth condition, he adds, "It is difficult to say how the epidemic reached this place; it is only too easy to understand how it spread."

Since the last epidemic of cholera in this country the improvements which have taken place have been enormous, but the activity has been almost exclusively confined to our urban districts. The number of towns without a public water supply and without a fairly adequate system of sewers is comparatively limited, and those in default are chiefly the very small towns with a stationary population, inhabited by people thoroughly conservative in character, and who are proud of proclaiming that what was good enough for their fathers is good enough for them. The smaller the place the more strongly does this feeling prevail; hence the reason why so few sanitary improvements have been carried out in our villages and in our rural districts generally. The men who pay the larger proportion of the rates and who control all public matters are usually able to keep their own homes and the surroundings of their homes clean and sweet, and to provide themselves with an abundance of water and food. The labourers, on the other hand, must reside in the cottages provided for them, whatever their character or the nature of their surroundings, must use such water as is available and feed and clothe their families for a week on less than thousands of their fellow countrymen spend every day over a single dinner. To provide them with better cottages, to improve their surroundings, and bring within a reasonable distance an abundant and pure water supply involves expense, which must be borne either by individual owners or be raised by rates, in either case the burden falling upon the larger ratepayers. Such works also chiefly improve the value of estates, the owners of which may contribute nothing directly towards the expense. That there are rural sanitary authorities conscientiously discharging their duties I admit, but whilst human nature is human nature we must not expect to find any instances in which they will voluntarily impose a tax upon themselves to benefit others. The difficulty is to convince such people that in benefiting others they are benefiting themselves; that in doing that which will keep filth diseases out of the community in which they reside, they are protecting their own families and friends. This difficulty I am afraid is increasing. The present condition of things and the gloomy outlook for the future, especially in the purely agricultural districts, is making men more selfish, and enormously increasing the difficulties in the way of sanitary reform. The conditions most favourable for the spread of cholera are to be found still in hundreds, nay, in thousands of our villages. Small, damp,

overcrowded cottages abound, foul privies, bumbies, and refuse heaps pollute the soil, the water, and the air, and all the warnings of the health officers remain too often unheeded. In too many instances only the actual outbreak of some disease, such as diphtheria, typhoid fever, or cholera, can cause any often urged sanitary improvement to be effected. Should cholera again visit us, it will be the rural districts that will be least prepared to meet and resist the onslaught. The previous epidemics proved blessings in disguise, inasmuch as the sanitary reforms, since carried out, have saved far more lives than cholera ever killed in this country, and probably another epidemic, affecting our rural communities more especially, would arouse our sanitary authorities and our Legislature to the necessity of paying more attention to village sanitation, and hence not prove an unmixed evil. One would think that the heavy price already paid for our experience would have given the country a lesson not easily forgotten, but I am very much afraid that another epidemic, another large sacrifice of human lives, is necessary to bring the truth home to the present generation. This question of rural sanitation is not one which affects rural districts only. If disease is engendered in the village it will certainly spread to the towns, it may be directly by the movements of the population, or it may be by the specific pollution of springs and streams upon which the town dwellers depend for their supply of water, or in a hundred and one different ways which will occur to the thoughtful observer.

"Cholera," said Sir John Simon in 1865, "throws men into terrible convulsions, and kills half its victims in twenty-four hours; but there is a merciful warning of its approach in probably every instance, the neglect of which is fatal." That warning we are now receiving; before it is too late let us urge upon the nation the great need which still exists, in our rural districts more especially, of carrying out those reforms which will remedy overcrowding, prevent the earth under and around our houses becoming excrement-sodden, the air from reeking with excrement, and our water supplies from becoming excrement-tainted, since by these means, and these alone, can we keep cholera at bay.

More attention should be given to the water supplies and to the scavenging, &c., of our rural districts, if we are to prevent cholera becoming epidemic therein, should the disease be unfortunately introduced. Whether Pettenkofer's factors, X (the cholera microbe), Y (the local and periodical conditions), or Z (the

individual tendency), be all equally important or not, it is evident that Y is the only one which we can at present in any way control, and therefore it is the one which should receive the greatest share of our attention. Should X make its appearance in the country, then every medical officer of health must be prepared to take prompt action. As Dr. Heron has pointed out, "tramps" are the most likely persons to act as disseminators of the disease, since whilst suffering from a mild form they may still be able to continue their travels. Tramps, whether in common lodging-houses or in the workhouse, therefore, should be placed under some kind of supervision, so that no case of diarrhœa could escape detection, and any person so suffering should be detained until complete recovery has taken place, or until the illness has terminated. Every medical officer should arrange with his *confrères* in the surrounding districts to give him the earliest information of any case coming to their knowledge, or the county medical officer of health should arrange to have any case occurring in the county at once notified to him by telegraph, when he could promptly give the alarm throughout the whole county. The port sanitary authorities also should send on the names and addresses of passengers from infected vessels without delay, and the medical officer of health, on receipt thereof, should verify the address, and make such arrangements as he thinks best for obtaining early information of any suspicious symptom, and prepare for any emergency.

In the majority of cases the patients cannot be moved any distance with safety, and probably most will have to be treated in their own homes, or, at any rate, in the village where the outbreak occurs. If the sanitary authority possesses a tent hospital, this should be in readiness for being transported and erected at a moment's notice. A list of suitable unoccupied cottages or houses (if any) might be prepared, so that one or more might be turned into temporary hospitals, or into temporary homes for persons moved out of infected houses. Where there are cottage hospitals, probably some arrangement could be made for removing the ordinary patients and converting the building into a temporary cholera hospital. In a serious emergency the public elementary school might furnish accommodation for the patients.

Should a serious outbreak occur in this country, there would probably be no trained nurses available for our rural districts. The medical officer of health should, if possible, ascertain whether there are any women in his district who have some little knowledge

of nursing, and who will volunteer to assist in taking charge of cholera patients in case of need. Possibly also he could arrange that these women should receive some little instruction to better qualify them for the discharge of such duties.

A stock of disinfectants (mercuric chloride solution and *reliable* carbolic acid) should be put up in bottles ready for distribution, and with precise directions for use on the labels. The market is flooded with unreliable disinfectants, and the labels give directions for use for such a variety of purposes as to confuse the reader.

Leaflets and posters describing all the precautions to be taken for the prevention of the disease should be on hand, so that they can be distributed and re-distributed where and when required. These could also give the names of the district medical officers, who might be authorised to distribute free of charge some approved mixture for diarrhœa. In each parish also a supply of disinfectants (sulphate of iron, chloride of lime, carbolic acid, etc.) might be stored at some central dépôt in each parish, and be supplied free of charge and with proper instructions for use to all persons who could be entrusted to make proper use of them.

PUBLIC HEALTH REPORTS.

Salford.—This important borough stands, in point of population, twelfth on the list of the thirty-three large towns of England and Wales, the estimated number of inhabitants at Midsummer, 1892, being 201,058, thus pressing close on Hull, with a population of 204,750, and not much under either Nottingham, West Ham Bradford, or Bristol. When we consider the teeming population of the contiguous city of Manchester—over half a million—and the numerous good-sized towns in the immediate locality, we cannot fail to be struck with the crowded condition of the Lancashire hives of human industry. London almost overawes foreigners and country people visiting the metropolis for the first time, by the incessant throngs in the streets and the apparently interminable rows of houses; but we have heard it stated by Lancashire friends that within a radius of some 25 or 30 miles of the Manchester Exchange there is actually a larger number of inhabitants than within the same distance of the London Exchange. The reason of this is that, excluding West Ham and Croydon, there are no very populous places near to the metropolis.

Dr. Charles E. Paget, the medical officer of health for Salford, mentions the facts that the general death-rate of

the borough was below the mean of the quinquennial period 1886-1890, and also below the rate for the year 1891, being 24·6 per 1,000 for the year 1892, as against an average of 25·7 per 1,000 in the five years 1886-1890, and as against the mortality, 26 per 1,000 in 1891. But, contrasted with the other great English towns, it does not show up well, their death-rate in 1892 averaging 20·67 per 1,000. This circumstance was due to the great mortality in Salford from measles, namely, 306 deaths during the twelve months; and this, again, mainly accounts for the fact that, owing to the fatal character of the measles outbreaks, the zymotic death-rate was equal to one fifth of the whole mortality of the borough in 1892. Our regular readers must have noticed the frequency—we had almost said, the certainty—with which measles turns up in the medical reports given in our columns, and the evident desirability of including it amongst notifiable infectious diseases.

The births during 1892 were 7,190—the sexes being nearly evenly balanced, 3,638 of the children born being males and 3,552 females—making an annual birth-rate of 35·8 per 1,000 of the population. The average annual birth-rate in the 33 large towns was 31·9. As regards infantile mortality, the proportion of deaths under one year of age per 1,000 births was 186, as against 194 in the previous year, and 193 in 1890. The proportion in all of the 33 large towns in 1892 averaged 168 per 1,000, varying from 122 per 1,000 in Croydon to 197 in Blackburn, and 216 in Preston. Poor little Prestonians! In speaking of such a high rate of infantile mortality, one is reminded of the inscription in a country churchyard over the grave of a very young child:—"Seeing I'm so soon done for, I wonder what I was begun for."

Of the deaths amongst people advancing in years, 817 occurred of persons who had reached or passed 60 years of age, making 16·4 per cent. of the total deaths at all ages.

In connection with the subject of mortality statistics, Dr. Paget reports with evident satisfaction that the Health Committee of Salford have recognised that there is a degree of infection in phthisis, and have taken preliminary action in regard thereto. It may be stated, in passing, that 382 deaths from this cause were registered in the borough last year, while there were also 62 deaths from scrofula, 155 from tubercular meningitis and hydrocephalus, and 78 from the allied disease, tabes mesenterica. The Corporation have adopted the memorandum of the North-Western Branch of the Society of Medical Officers of Health* as to the infectious-

ness of consumption or phthisis, and the necessity of measures to prevent its spread in this manner, and the Manchester Hospital for Consumption has been supplied with special forms relative to the disinfection of the homes of phthysical patients; while the Health Committee have passed a resolution providing for such disinfection free of cost, on the recommendation of any qualified medical practitioner, or of the medical officer of health. In addition to these special measures, the Corporation have attacked insanitary areas, opened out *cul-de-sacs*, and increased the number of open spaces in the borough, with the usual gratifying results.

The total number of cases of infectious diseases notified in 1892 under the Infectious Diseases Notification Act was 1,572. Of these, 713, or nearly the half, were isolated in the special hospital. The new infectious diseases hospital, called the Ladywell Sanatorium, was opened last year, and is now in full use. The number of houses disinfected and cleansed by the Health Department, on account of infectious diseases occurring in them, amounted to 1,386; and 694 packages of infected bedding and clothing were disinfected by high-pressure steam apparatus.

Of scarlet fever 865 cases were notified during the year, being in excess of the previous twelve months, but considerably below the average of similar notifications in the four preceding years, namely, 1887-1890. Dr. Paget expresses his belief that the strict regulations enforced in the borough for some three or four years past may be credited with much diminution in the amount of the disease. As he remarks, it is too much to hope for the eradication of scarlet fever from a borough containing so large a proportion of the artisan classes as Salford does; but he clearly demonstrates that much may be done in the direction of controlling the spread of this affection.

The number of cases of enteric fever notified during 1892 was 347; of typhus fever, 5. There were 86 cases of erysipelas notified during the year, but, Dr. Paget observes, none of them call for any special remark. Indeed, had this affection been omitted from the notifiable diseases, and measles substituted, the omission of erysipelas would have been of no moment, while the insertion of measles would doubtless have brought the mortality from that disease considerably under the 306 deaths registered as due to it.

The ordinary sanitary work of the Health Department included 32,130 inspections of premises, being nearly 6,000 in excess of those in the previous year, while, in addition, there were 21,601 re-inspections, being almost 4,000 more than in 1891. The variety and extent of these inspections may be judged by the following

* We shall refer to this important document in a future number of HYGIENE.

figures:—10,692 inspections of common lodging-houses and registered houses sublet in lodgings, the great frequency of these inspections arising from the urgent necessity of controlling, as far as possible, the spread of small-pox, which began to get threatening towards the end of last year; 1,284 inspections of slaughter-houses, 563 of dairies and milkshops, 609 of shippens (stables and cow-houses), 420 of "tips," 372 of bake-houses, and 1,710 of a miscellaneous character. The number of nuisances dealt with and removed was proportionately extensive.

During the year 853 samples of food and drugs were submitted to the Public Analyst for the borough, Mr. J. Carter Bell, F.I.C. The number in 1891 was 901, and in 1890, 870. Of the 853 samples, 63, or 7·4 per cent. were found to be adulterated; the percentages of adulteration in 1891 and 1890 were 6·1 and 5·1 respectively, so that adulteration is apparently somewhat on the increase. Legal proceedings were adopted against one offender in the matter of coffee, who was fined £4; 5 cases of milk adulteration, total of fines £3 12s. 6d.; and 10 margarine cases, 9 convictions, with fines amounting to £7 17s. 6d., and 1 dismissal. In addition some 20 or 30 cautions were given where the adulteration proved to be only slight.

There are 36 private slaughter-houses in Salford, as against 51 in 1888. Nearly 20 tons of meat unfit for human food were seized by the inspectors, and subsequently destroyed in the furnace at the Salford Manure Dépôt.

In his previous annual report Dr. Paget was able to announce that the number of cellar-dwellings had, since his appointment to the medical officership of health, been steadily reduced, without causing serious inconvenience to tenants, from 279 to 147. In the report before us (for 1892) he is able to refer to a further diminution, making the total remaining 102, as against 279 in 1889.

The introduction of the smoke-test for suspected drains early in 1891 has been productive of good results. In 718 instances where the smoke-test was resorted to, no less than 710 defects were disclosed, the number of houses involved in the inquiries being 5,280.

An additional refuse destructor has been lately provided for the Pendleton district of the borough, more energetic and frequent cleansing and flushing of sewers and passage drains have been resorted to, and other steps taken to improve the general sanitary condition of the borough.

ON HAY-FEVER, HAY-ASTHMA, OR SUMMER-CATARRH.

By THE EDITOR.

(Concluded from page 127.)

Hot fomentations, with either water or decoction of poppies, or of marsh-mallow, should be used to relieve the swelling, pain, and irritation of the conjunctivæ and eyelids.

Glycerine, zinc ointment, or cold cream should be applied occasionally to the interior of the nostrils by means of a camel's hair brush or a feather.

A medical gentleman who was under my treatment last year informed me that he experienced a sensation of relief from painting the inside of the nostrils with a solution of nitrate of silver; but, as a rule, emollient applications are the best. It is important when glycerine is used to have it pure, as some varieties of glycerine are adulterated or imperfectly purified, and contain oxide of lead, fatty acids, lime, chlorides, and other impurities, so that their application to a sensitive mucous surface is attended by more or less irritation. Various remedial substances can be combined with the glycerine, according to the requirements of individual cases, the solvent power of glycerine being greater even than that of water.

The frequent inhalation of the steam of hot water (either simple or medicated), and of different sedatives, in the form of atomized fluid or spray, will be found valuable in relieving the unpleasant, tickling sensation felt in the mucous membrane of the nose and other air-passages.

The following remedies can be used with advantage by inhalation, viz., liquor arsenicalis, one to ten minims in an ounce of pure water; extract of Cannabis Indica, half a grain to two grains in each ounce of water; extract of conium, in the same proportion as the preceding remedy; camphor two to five grains; tinct. camph. comp., five to twenty minims; tincture of opium, five to twenty minims; bromide of potassium, two to ten grains; sulphate of zinc, two to fifteen grains dissolved in an ounce of water; decoction of althœa, either in its ordinary condition or with an equal proportion of boiling water.

Those inhalers in which the various remedies are vaporised combined with the steam of hot water possess the following general advantages:—1.—That the steam inhaled has a soothing and beneficial effect. 2.—That the deep, prolonged, and steady inspirations taken by the patient, while inhaling, promote complete expansion of the chest, and help to

bring the patient into a habit of more completely filling the lungs during each act of inspiration ; and, 3.—That by applying remedies in this way we may avoid the disturbance of the digestive functions which often occurs when medicines are taken into the stomach in the usual way by delicate persons.

Small pieces of ice, dissolved at frequent intervals in the patient's mouth, often succeed more than anything else in obviating the heat, dryness, and tickling sensation felt in the roof of the mouth, the palate, and fauces.

In a remarkable case which came under my care the patient's sufferings were unusually severe, and the feelings of heat and constriction of the throat and chest were such as to make her dread imminent suffocation. This local complication, after resisting several remedies tried by other medical men and myself, yielded to the occasional sucking of small lumps of ice and the frequent inhalation of the steam of hot water by means of an inhaler.

One of the most valuable local anæsthetics is Cocaine, which may be used in low strength solutions as a lotion to the inflamed nostrils, or to the carunculae, when very painful.

The following remedies are amongst the best for internal administration.

Lobelia, in full doses of the tincture, three or four times a day (as recommended by the late Mr. Gordon) ; the preparations of opium, especially the *Tinctura Camphoræ Composita* ; and the other principal sedatives and antispasmodics. Aconite is one of the most useful remedies of this class, if given in suitable cases, principally the catarrho-febrile. The tincture is the most convenient and certain preparation of this drug, but great care must be exercised in its administration, as it has a tendency to accumulate in the system, like digitalis and some other powerful medicines.

A most convenient means of administering aconite is the tabloid triturate of tincture of aconite. Each tabloid contains one minim of the tincture. Another very valuable remedy for reducing the febrile symptoms in hay fever is antipyrin, compressed into tabloids, each containing 5 grains.

I may here remark that tobacco smoking, as in ordinary asthma, sometimes effects wonders in diminishing the severity of the paroxysms. The inhalation of the fumes produced by burning paper previously prepared with a solution of nitrate of potash also deserves notice, as being advantageous in some cases. A London banker, an old patient of mine, in whose

family hay-fever is hereditary, finds this the only remedy from which certain benefit can be obtained ; in his case there is an asthmatic tendency.

I must not omit to give a word of caution concerning the useless, and often worse than useless, nostrums made in the form of cigarettes, smelling-salts, &c., eulogistically advertised by their vendors. These may be classed with the other equally absurd remedies so extensively puffed in the newspapers, but which are absolutely destitute of any curative properties.

Bromide of potassium, or of ammonium, in five or ten grain or even larger doses, according to the age of the patient and the intensity of the symptoms, given in some bitter infusion, will prove efficacious in cases where the faucial or bronchial irritability is excessive.

The bitter vegetable tonics, particularly quinine, nux vomica, quassia, and gentian, or the preparations of iron, zinc, and arsenic, and other mineral tonics, may be administered when the patient's constitution requires invigorating treatment.

Amongst the mineral tonics, I generally give the preference to zinc or arsenic. The preparations of iron, recommended by some writers, are apt to produce disturbance of the digestive organs without exercising an adequate influence over the affection.

The various secretory and excretory functions should be regulated by appropriate medicines, and in all cases it will be found judicious to prescribe an occasional saline, cooling aperient.

At the same time the very powerful and lowering depletives recommended by some writers must be carefully shunned, and it should be borne in mind by the practitioner that in a large majority of cases of summer-catarrh, the patient's strength is so much reduced that stimulants and tonics are more generally indicated than active purgatives, diuretics, and similar exhausting remedies.

When the eyes are affected, soothing collyria (one containing *Liq. plumb diacet.* being generally the best) or warm water should be frequently applied ; and green or blue glass spectacles, or a shade, should be worn whenever the patient goes out of doors during the daytime. Reading by gas or other artificial light must be particularly avoided.

The diet should consist of nutritious, easily-digested food, with pale ale, sherry, or claret at lunch and dinner. Coffee, cocoa, or chocolate are the best fluids at other meals.

Moderate exercise ought to be taken daily in the open air, in a shady, cool place, at as great a distance

as possible from the exciting causes of the affection. This should be either gentle walking, or riding in a carriage, on roads free from dust. Riding on horseback is sometimes prejudicial to recovery, and I have known several instances in which very moderate exercise on horseback either excited an attack of the affection, or rendered the symptoms, which were previously present in a mild form, much more severe. Any form of violent physical exertion should be carefully guarded against.

BRITISH HEALTH RESORTS*.

NO. IV. (NEW SERIES).—YARMOUTH.

Whose fishing through the Realme doth her so much renowne,
Where those that with their nets still haunt the boundless lake,
Her such a sumptuous feast of salted herrings make,
As if they had robb'd the Sea of all his former store,
And past that very howre, it could produce no more.

—DRAYTON'S POLYOLBION, 1612.

This place is usually styled by its inhabitants "Great Yarmouth," though the prefix seems most unnecessary. We know of only one other Yarmouth in the kingdom, viz.—Yarmouth in the Isle of Wight, which little village with its few hundred inhabitants is hardly likely to be confounded with the town forming the subject of the present article, and ranking as the largest watering-place on the east coast.

"If you have a grudge against any particular insurance company, purchase from it a heavy life annuity, go and live at Great Yarmouth, and draw your dividends until they ask in despair whether your name is Old Parr or Methuselah." Thus wrote Charles Dickens years ago in "David Copperfield," and the fact which the inimitable novelist conveyed in his felicitous style holds good at the present day. Yarmouth is an undoubtedly healthy place, whether for permanent or temporary residence; and being situated within easy reach of the metropolis by the great Eastern Railway, this pleasant Norfolk town is a favourite summer resort for Londoners. Its open marine position, looking out direct upon the North Sea, its fine sands extending for miles, its bathing facilities, its varied amusements, and its accessibility by rail, all tend to heighten the popularity of Yarmouth; and, although the "season" at this watering-place is reckoned to extend from the commencement of June to the end of September, those who prefer freedom from crowding find

it an agreeable resort at other periods of the year, provided always—as the lawyers say—that the wind is not blowing direct from the east.

Like its neighbour, Lowestoft, Yarmouth lays claim to very considerable antiquity. Near to the parish church is a rising piece of ground called Fuller's Hill, which is described by local guide-books as probably the spot upon which the first houses in Yarmouth were erected. Be this as it may, there is no doubt that at a very early period of English history people from a distance interested in fishing enterprise visited this locality, and, some remaining instead of returning to their original homes, the town was gradually developed, the river Yare on the one hand and the North Sea on the other furnishing facilities of communication with other places and ready sources of subsistence; according to Camden, the site of Yarmouth was previously known by the name of Sardike Sand and Sardike Shore.

One thing that must strike every stranger as peculiar when making his first peregrination of the older part of Yarmouth is the long series of narrow passages running from one principal street to another, termed Rows, and numbering 145 in all, with houses on each side. Although none of these are sufficiently wide to allow of other than pedestrian traffic, many quaint, old-fashioned houses, dating several centuries back, bearing both external and internal evidence of great expense and labour being devoted to their erection and decoration, are to be found in them. In fact, old Yarmouth is full of interest to the antiquary and to the curiosity-seeker.

That it has long been a town of considerable size and population is evidenced by the circumstance that in 1348 no fewer than 7,052 persons died at Yarmouth of the terrible epidemic called the Black Death, in all probability a kind of typhus fever, engendered by neglect of sanitary arrangements, which, after ravaging the Continent, visited various parts of England. The total population of Yarmouth prior to this outbreak was estimated at 10,000, so that nearly three-fourths of its inhabitants must have succumbed to this dire disease, and been conveyed by the minority who survived it to the huge graveyard (proportionate in dimensions to the edifice itself) which surrounds the parish church.

One result of this heavy mortality was that it led to the cessation of a long-standing feud which then existed between Yarmouth and Lowestoft, owing to the struggles between the men of these two towns for the supremacy of the fishing and trade in herrings—much bickering and bloodshed being the consequence of their coming frequently into collision. Subsequently Yarmouth obtained a charter, and the Yarmouthians attempted to interpret the

* The places already described in this new series are, No. 1, Swanage (with illustration, *HYGIENE* for May 13); No. 2, Lowestoft (with illustration, *HYGIENE*, June 16); No. 3, Clacton-on-Sea and Walton-on-the-Naze, July 7.

charter in such a manner as to exclude the merchants of Lowestoft from purchasing herrings on the sea near to their own town. The ancient feud was consequently renewed to such an extent that the combatants fitted out armed vessels for the purpose of attacking each other on the high sea, and of carrying hostilities into the other's vicinity. At last the services of Parliament were called into requisition to adjust the quarrel and to settle the difficulty. Certainly there was something to fight for, more than the mere glory of conquest; for a prodigious quantity of herrings are taken every season off these two ports. The official returns at Yarmouth in 1884 showed that between August 23 and December 20, 312,907,942 herrings were landed there, a sufficient evidence that there is no falling off in the apparently inexhaustible supply, especially when it is borne in mind that correspondingly enormous takes of fish are carried into Lowestoft harbour. During two days of November in a recent more than ordinarily good fishing season 2,300 lasts of herrings (each last consisting of 13,200 fish) were landed at the latter place, making in round numbers over thirty millions.

An old writer, "Nash," in a book entitled "Lenten Stufe," and published in 1599, gives the following account of the origin of the red herring, with which the name of Yarmouth is inseparably connected:—A fisherman having taken so many fish that he could not dispose of them, hung some up in his smoky cabin, and he was astonished, some days afterwards, at finding that they had changed their colour from white to the "deareate ruddie"—golden red—which distinguishes ham-dried bloaters at the present day. Both the fisherman and his wife were so amazed at this transformation that they fell down on their knees, blessed themselves, and cried out, "A miracle! a miracle!" When they had recovered their equanimity enough to take a more practical view of things, the fisherman betook himself to Burgh Castle, near Yarmouth, where the King was holding his Court, to exhibit these odd fish to his Majesty, who, "partaking of the fellow's astonishment, licensed him to carry them up and down the realm, as strange monsters." They are familiar now to the poorest in the land; even the wretched inmates of an Irish cabin, who scarcely ever know the taste of meat, can afford to have these "strange monsters" upon their table. By the way, have any of our many thousand readers ever seen a "one-eyed pheasant"? Before they have time to answer this question in the negative, we will ask them a second. Have they ever seen a red herring lying on its side on a plate or on a fishmonger's slab? Then, they have seen this *rara avis*, this "strange monster," for a "one-eyed pheasant" is the facetious title given to a red herring by

the lower-class Irish, whose miserable condition of life even cannot extinguish their native wit. The "one eye" is obviously that showing on the side of the fish which is uppermost, while its colour is suggestive of the real pheasant.

The parish church of Yarmouth, already referred to, is, like the adjacent burial ground, very large, and is, indeed, the largest parish church in England, its area being 23,265 square feet. It was founded in 1101 by Herbert de Losinga, the first Bishop of Norwich, and enlarged from time to time by different benefactors, so that it is now capable of accommodating about 3,000 persons. At the period of the Reformation this edifice was, in common with many other ecclesiastical buildings, subjected to various despoilments and changes of its interior; but these were apparently nothing as compared with what took place during the Commonwealth, when it certainly needed to be spacious, for we learn from local records that, in 1650, three distinct sets of worshippers used this church for their religious services. The Presbyterians appropriated the north aisle, which they separated from the rest of the body of the church by filling up three large arches; the sect known as Independents occupied the chancel; and the Episcopalians, previously the sole authorised tenants, were permitted to retain the remainder. What wonderful displays of the Christian virtues this tripartite arrangement must have given rise to on every Sunday! The most orthodox church and chapel goers give vent to very unorthodox remarks if, say, a favourite corn chances to be knocked, or the hem of their garments trodden on, as they are leaving their place of worship; but what singular observations would be muttered, what glances of contempt and ill-concealed hatred would pass from one person to another, as Presbyterians, Independents, and Episcopalians jostled their respective religious opponents in passing out of the building after their devotions were concluded! Let us hope that one set of these were half-timers, and consequently got clear of the portals before their longer-winded brethren made their exit. Otherwise the effect, to use the slangy language of some young ladies of the present day, must have been "quite too awfully awful to contemplate."

Various objects within the church are worth seeing. By the west door there is a curious seat, made of the base of the skull and the upper vertebræ of a large whale, which is said to have been washed ashore at Caister in 1582. A similar seat is described in *Household Words* for 1857. "In a garden in Clapham," says the writer of the article, "we have seen one of the huge dorsal vertibræ of a whale converted into a chair by being

mounted on three wooden legs ; the broad part makes a capital seat, and the projecting spines the back and sides of the chair." Mr. Lupson mentions in an excellent guide book to Yarmouth that many years ago, in their zeal for painting, the persons responsible for the management of the church painted this whalebone seat at a cost of eight shillings, and also gave a couple of coats of white paint to the handsome Early English font, which is made of Purbeck marble. The pulpit is a very elaborate piece of workmanship, covered with figures of celebrated characters from the Old and New Testament, and various scriptural subjects. The organ, constructed by Jordan of London, in 1733, is a very fine one. The principal monument is that of the Fastolf family, who resided in Yarmouth in the 19th and 14th centuries. Sir John Fastolf, in the 15th century, built Caister Castle, now an interesting ruin, about three miles from Yarmouth.

Another interesting relic of antiquity is the Blackfriars' Tower, at the end of the town, which was one of sixteen towers placed upon the Rampart Wall erected 500 years ago for the defence of the town. This wall was 2,240 yards in length, and pierced by ten gates. One of these, which was standing until 1837, was called the Pudding Gate, and led out to the Pudding

Yard, where the butchers were obliged to deposit the refuse from their slaughter-houses, to which the term Pudding was applied. In an old book, Bohun's "Privilegia Londini," may be found the regulation that "the Pudding Cart of the Shambles shall not go afore the hour of nine in the night or after the hour of five in the morning, under pain of six shillings and eightpence"—no small fine, considering that money was then several times its present value. Our ancestors were more keen upon the subject of sanitation than is now commonly supposed. The "Annals of Cambridge," 1575, make mention of the Pudding Pit as one of the six common "dungells" (dunghills) of that town.

The Tolhouse, an old name for a prison—in Scotch, Tolbooth, as all readers of Sir Walter Scott's novels are well aware—is in Middlegate-street. It was erected in

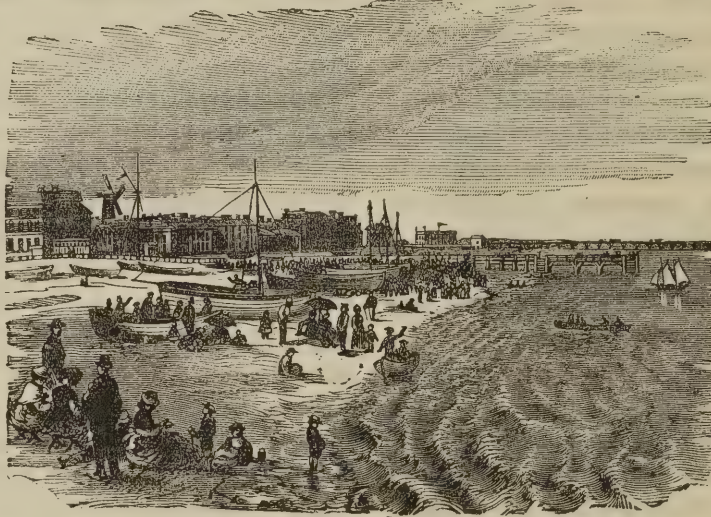
the 13th century in consequence of a charter granted to Yarmouth by Henry III., dated the 28th of September, 1261, by which the town was privileged to have its own gaol for the imprisonment of malefactors. Prisoners are now committed to Norwich Castle, and the gaol building is devoted to the more humane and civilising purposes of a free library. The Tolhouse is a good specimen of 13th century architecture.

Yarmouth abounded in monastic institutions previous to the Reformation. The Priory (the old refectory of which is now used as a schoolroom) adjoined the parish churchyard, and the Black Friars had a large establishment where Friars'-lane now stands.

It will be interesting to our medical readers to know that Sir James Paget, Bart., F.R.S., and his brother, Sir George Paget, Bart., late Regius Professor of Physic in the University of Cambridge, were born at Yarmouth, in

the house which is now the Government School of Art and Navigation. Sir Astley Cooper, an eminent surgeon in the reign of George III., was also a native of Norfolk.

The Market Place of Yarmouth is one of the largest in the kingdom, and presents an animated scene on market days. In olden times still more exciting though less agreeable ones



THE BEACH, YARMOUTH.

were witnessed, for this fine open space was occasionally used for the sport of bull-baiting, culprits were driven around its circuit and whipped at the cart tail, while others were placed in the pillory and stocks that stood here ; the old Market Cross (taken down in 1836) was made the central point for the announcement of important public news. In the Commonwealth time it was usual to proclaim banns of marriage at the Market Cross.

The reference to this period of history reminds us that Yarmouth played a leading part in the political strife which led to the downfall of Charles I. The Yarmouth men were Parliamentarians during the Civil Wars, while those of Lowestoft, animated probably in some degree by their hostility to the Norfolk town, warmly espoused the Royalist cause. On one occasion Cromwell, learning that a design had been formed by the Lowestoft

people, hastened thither with his troops and took possession of the place and of a number of guns and other war materials, in addition to which he made the principal inhabitants prisoners. At the South Quay, Yarmouth, is the house where it is believed that the execution of Charles I. was decided on. Oliver Cromwell was a frequent visitor to this house, which was the residence of John Carter, a great friend of his. Shortly before the unfortunate monarch's tragic end, a meeting of the chief officers of the Parliamentary army was held at Carter's house. "They chose," says the chronicler, "to be above-stairs, for the privacy of their conference. They strictly commanded that no person should come near the room, except a man appointed to attend their dinner, which was ordered for four o'clock, but was put off from time to time till past eleven o'clock. Then they came to a very short repast, and immediately afterwards they set off post-haste, many for London and some for the quarters of the army.' Miles Corbet, whose signature was the last attached to the death-warrant of Charles I., resided at Yarmouth, in a house which is now a public-house, called the Weavers' Arms.

Yarmouth can boast of a splendid beach, with extensive sands, reaching several miles to the north and south. The outlook over the sea, the well-known Yarmouth Roads being in the distance, is magnificent. The marine parade, which faces the beach, possesses numerous hotels and boarding-houses, which are in great request during the summer, as well as those in other parts of the town, giving accommodation to visitors. The Beach Gardens, a quarter of a mile in length, near the Wellington Pier, constitute an agreeable lounge. We may here mention another improvement, namely, that it is intended to illuminate the town by the electric light.

There are two piers, the Wellington and the Britannia. Near to the latter is the Aquarium, in which various entertainments are provided. Continuing our course along the sea front, we come to the Nelson Monument, which was erected after his death to commemorate the great deeds of the Admiral, who visited Yarmouth in 1800. It is a very striking object, and can be seen for many miles, both on sea and on land.

Many pleasant excursions can be had by rail, road, river, and sea, from Yarmouth to places of interest in its neighbourhood. Amongst these are the ruins of Caister Castle, already spoken of, and of Burgh Castle, nearly 2,000 years old; Lowestoft, which can be reached by rail in half an hour, or by one of the Steam Tug Company's passenger boats, which also make cheap trips to Southwold, Cromer, &c.; and the famous

Norfolk Broads, expanses of water situated a few miles inland, abounding in charming summer scenery, and affording unlimited facilities for boating and fishing.

The principal kinds of fish in the Broads are pike (often very large, and over twenty pounds in weight), perch, roach, bream, carp, and rudd, together with grey mullet, which find their way at summer time in large shoals up the river Yare from the sea at Yarmouth. The chief of the Broads are Oulton (Oulton High House and the church are worth notice), Wroxham, Ormesby, Surlingham, Whiteslea, Marsham, Heigham, Salhouse, Ranworth, South Walsham, Hickling, Filby, and Burton. For beautiful scenery, healthful recreation, and thorough change, particularly in the case of persons who have been pent up in cities and towns, there is no part of England superior to the Broads of Norfolk and Suffolk. As we glide over them in our boat, we cannot help wondering at the shortsightedness of people who put themselves to much expense, trouble, and loss of time in visiting Continental resorts, often overcrowded and uncomfortable, instead of going to the pleasant places within easy reach of them in their own country.

W. A.

[Our illustration is taken from a block kindly lent us by Messrs. Jarrold and Son, of Ipswich, publishers of the admirable series of guide-books to places on the East Coast].

THE PUBLIC HEALTH CONGRESS.

THE third annual Congress of the British Institute of Public Health, held at Edinburgh, was concluded on Monday, and was a fitting successor to the two previous meetings held in London and Dublin, being well attended. The University Buildings were placed at the disposal of the Institute. Amongst others attending the Congress were the Lord Mayors of London and Dublin, the Lord Provost of Edinburgh, Lord Huntley, and the Sheriffs of London.

On Thursday, July 27, the Congress was opened by a general meeting, at which Sir Charles A. Cameron, M.O.H. for Dublin, the retiring president, introduced as his successor Dr. Henry Littlejohn, M.O.H. for Edinburgh. On taking the presidential chair, Dr. Littlejohn delivered an address on the Sanitary Progress of Edinburgh, showing that the Scottish capital had adopted good hygienic measures on behalf of its citizens. In the Preventive Medicine Section, Dr. Russell, of Glasgow, presided, and Dr. Leslie Mackenzie, Wigtonshire, read a paper in which he advocated the inclusion by Scotch County Councils of hygiene as a part of their technical education programme.—Dr. C. Pattin, of Norwich, urged the necessity of teaching hygiene

to children in schools, as more likely to bring about the object in view than lecturing to adults.—Miss Charlotte Smith, of Southsea, suggested that, as it was a known fact that one-fourth of the children born in this country die, for the greater part of preventable disease, under five years of age, it would be an excellent thing to employ in large towns specially-trained women as inspectors to speak to and advise the mothers, thus devoting more attention to the prevention of disease and less to sick-nursing than at present.—Dr. Edgar Flinn, Dublin, read a short paper on the sanitary certification of dwelling-houses.—In the Engineering Section, Professor Armstrong, of Edinburgh University, delivered an address on the relation between the science of engineering and public hygiene. He stated that during the past fifty years something like £22,000,000 had been spent in London alone on drainage and water supply works.—The section on chemistry and climatology was presided over by Professor Crum Brown. Professor Ivison Macadam, Edinburgh, spoke on the subject of waters for domestic uses. He thought that in Scotland it was generally considered that waters containing only a very small proportion of saline matters were best adapted for town supply; but, on the other hand, it was distinctly stated in certain books that the saline constituents should be considerable in amount, to supply the necessary salt for the conservation of health. His own opinion was that preference should be given to water not containing more than twelve grains of saline ingredients per gallon. Nitrates and nitrites should be absent and chlorides low, except near the sea. The dissolved gases should contain little carbonic acid gas, and the oxygen and nitrogen should be as one to two. Sir Charles Cameron said that in parts of the United States the presence of any excess of chlorine was held sufficient to lead to the condemnation of the water; but if that rule prevailed in Ireland nearly all the water would be condemned, for chlorine was always more or less present in it. He was of opinion that the greatest importance should be attached to the presence of albuminoid matter, and comparatively little to that of chlorine. Further, the character of the organisms found in the water was of much more importance than the mere number of organisms contained.

On Friday, July 28, Dr. J. E. Squire, London, read a paper in which he advanced the opinion that pulmonary consumption should be included in the list of diseases coming under the Notification Act, and that hospitals and homes should be provided for the isolation of consumptive patients.

Saturday was devoted to a general meeting, one

section only sitting, and to various functions of hospitality and inspection of places of public interest. At the general meeting, Dr. Charles James, secretary of the Institute, read the Council's annual report, and Dr. Francis J. Allan, treasurer, reported a balance in hand of £200. The following were elected honorary fellows:—Professor Pasteur, Paris; Professor Pettenhofer, Munich; Sir George Buchanan, late senior medical officer of health, Local Government Board; Sir Henry Acland, Regius Professor of Physic, Oxford; the Duke of Westminster; Dr. Edward Frankland; Professor Crum Brown; and Sir Stuart Knill, Lord Mayor of London. It was resolved that the next meeting should be held in London, and Professor W. R. Smith was chosen President-Elect. On the motion of Sir Spencer Wells, seconded by Sir Charles Cameron, a committee was appointed to take steps for securing that medical officers of health should not engage in private practice, but should give their whole time to their public duties. Professor Crum Brown moved a resolution, which was passed, approving the examination and registration of plumbers, in the interests of the public health. Two resolutions, brought forward by Professor Armstrong, Edinburgh—(1) to the effect that a Royal Commission should be appointed to inquire into the different processes of sewage disposal, and to report to Parliament; and (2) that a committee should be appointed to collect information on this subject—were also adopted.—A motion by Professor Crum Brown, that it was desirable that a Parliamentary inquiry should be held into the working of the Sale of Food and Drugs Acts was carried unanimously.—In the Medical Section Mr. Ernest Hart read a paper on Cholera, in which he specially pointed out that its *habitat* was in India, and that the chief influences at work in its dissemination were Indian fairs and Meccan pilgrimages.

On Monday, July 31, the Congress was brought to a conclusion by a general meeting, under the presidency of Dr. Littlejohn, in the afternoon. In the morning Sir Spencer Wells read a paper on Cremation, after which it was resolved that the time had now arrived when cremation should be adopted, especially for all cases of death from infectious diseases, and that local authorities should be empowered by Parliament to build crematoria, and to conduct them under efficient supervision. Dr. Ballantine, of Agra, in the Preventive Medicine Section, described the advantages of filtration, as exemplified in the new water supply of that city from the river Jumna, its filtration before being supplied having largely prevented cholera and typhoid. On the other hand, both of these diseases had

continued with undiminished force in the military cantonments, where the water was used as taken from the wells, without filtration. Councillor Loudon, of Coventry, read a paper urging that the administration of the vaccination laws should be on a different basis, and suggesting an inspection in every large town, an arrangement similar to that made under the Factory Acts.

The Sanitary Engineering Section discussed the question of water supply. Mr. Gale, C.E., of Glasgow, gave details of the Loch Katrine water works. The collection-area at Loch Katrine is 74·8 square miles, and the Loch is situated 387 feet above sea-level.

The storage amounts to 95 days' supply. At the head of the Loch the rainfall is heavy, being in some years over one hundred inches. The aqueduct to Glasgow is $25\frac{3}{4}$ miles long. The total cost of the works was £1,500,000. Under its new powers the Corporation will be able to duplicate the first set of works; and when the sides of the Loch are raised, the contained amount of water will be fifteen thousand gallons. In the discussion which followed, Professor Armstrong remarked, referring to the cistern system, that it was a dirty and insanitary one, and ought to be abandoned in every town.—The Impurities of Town Air formed the subject of a paper by Dr. T. Evans, Manchester. He gave the results of three years' observation in Manchester, and stated the curious fact that in the centre of that city the solid particles in the air were so much in excess that the amount of light recorded averaged only one-half of that in the suburbs.

The Vacant Site of Millbank Prison is a bone of contention between the Westminster Vestry, who desire to obtain it for an open space, and another party who wish to see it appropriated to the purpose of erecting industrial dwellings. The matter was discussed in the House of Lords last week, when the Earl of Meath advocated the case of the Vestry; but the Marquis of Salisbury showed that the building of working men's dwellings was still more important. He stated that, in 1884, a committee, presided over by Sir Charles Dilke, reported in favour of the land being disposed of at cost price for that purpose; and that, in the following year, the Government of which Lord Salisbury was at the head framed a Bill to that effect through the Upper House, but it failed to get through the House of Commons after passing through the House of Lords. While sympathising with the movement for promoting open spaces, he argued that it seemed to him more important that men should have wholesome, decent, and healthy dwellings than places close at hand to walk in.

IN MEMORIAM.

HENRY CRITCHETT BARTLETT, PH.D.

It is with deep regret that we announce the death of this gentleman, who was well known by his numerous contributions to hygienic and chemical literature, and who had, previous to going abroad, one of the largest practices in London as a consulting analyst. The important evidence which he gave before the House of Commons Committee on Adulteration, and in connection with various other special inquiries, not only, like his writings, stamped him as an expert of the highest order, but proved his great zeal for the public good. Dr. Bartlett was one of our most esteemed coadjutors, and one of our oldest; for even when we held the editorship of the original *Public Health*, early in the "seventies," his work appeared frequently in the pages of that pioneer of the sanitary press. Some years ago Dr. Bartlett went out to Egypt, being interested in extensive irrigation and other undertakings, and remained in that country for a considerable period. While there he was attacked by malarial fever in its worst form. It was hoped that his return to England would, at any rate, partly restore him to his former vigorous health; but he gradually drooped, though bearing up wonderfully against intense, almost constant suffering, and he passed away on Monday, July 31, in the fifty-seventh year of his age.—Ed. HYGIENE.

PATENT MEDICINES.

Special Notice.—We had intended, in this number, to discuss the extraordinary use to which the name of the late Dr. Swaine Taylor, F.R.S., has been put in the advertisements of Clarke's Blood Mixture, a matter to which Dr. Bartlett drew attention in a pointed letter published in *HYGIENE* for June 30, and which we further referred to in the number for July 28. In view, however, of Dr. Bartlett's decease only a few days since, we must defer our comments to a subsequent occasion; unless, in the meantime, the proprietors of Clarke's Blood Mixture can furnish a satisfactory explanation of their employment of Dr. Swaine Taylor's name.—Ed. HYGIENE.

NEWS AND NOTES.

Cemeteries at Finchley.—There are already three London parish cemeteries at Finchley, and the Marylebone Vestry have lately applied to the Home Office for the sanction of the extension of their cemetery at Finchley to the extension of twelve acres additional. The inhabitants, through their Local Board, have memorialised the Home Office on the subject. In connection with this memorial, it is stated that 10,000 corpses are annually sent from London to Finchley to be buried, and that one cemetery alone out of the number has recorded in its books 25,000 burials in the past ten years. Yet no one seems to advocate the true remedy for filling hundreds of acres round about London with decaying corpses and rotting coffins—namely, cremation.

* *

Soda-Water.—A chemist in the Camberwell-road was lately summoned to the Lambeth Police Court, at the instance of the Camberwell Vestry, and charged with selling soda-water containing one and a half grain of bicarbonate of soda to the pint, instead of thirty grains, the quantity which should be contained, according to the British Pharmacopœia. The magistrate dismissed the summons, but on what grounds it is impossible to imagine. People who drink non-alcoholic drinks are as much entitled to protection against imposition as persons who partake of more stimulating fluids. For a chemist to sell as soda-water such a miserable substitute as water plus three grains of soda to the quart is a serious matter, too, seeing that invalids who are ordered by their medical advisers to take soda-water would be likely to place more implicit confidence in the article when obtained from a chemist's than when purchased elsewhere.

* *

Unwholesome Bakehouses.—A paragraph has appeared in the newspapers concerning a bakehouse in the Marylebone district which was found to be in a very dirty and improper condition. This only carries out the remarks which were made in the article on Bread and Breadmaking published in *HYGIENE* for July 7, and we have good reason to believe that there exists in the Metropolis hundreds of places used as bakehouses absolutely unfit for such a purpose. The blame does not rest with the officials connected with the local authorities; they perform their arduous and multifarious duties admirably, but they have too much thrown upon them, and it would be a desirable change if bakehouses were again placed under the supervision and control of special inspectors appointed by Government.

* *

Hospital Accommodation for Infectious Diseases.—The Metropolitan Asylums Board had under consideration at last Saturday's meeting the question of the erection of a new fever hospital on the Grangewood estate, at Upper Norwood. It was mentioned that the estate stands high, and is easy of access, and includes a mansion which has been un-

occupied for some time. The site comprises sixty-seven acres, and the price to be paid for it is £26,000. A resolution was passed to purchase this estate, as well as one at Tooting, for the immediate erection of much-needed additional hospital for infectious diseases.

* *

New Acts of Parliament.—Among the Acts which have received the Royal Assent are the Rivers Pollution Prevention and the Railway Servants (Hours of Labour) Acts.

* *

Mental Condition of School Children.—The Special Committee of the London School Board, appointed to report on the mental and physical condition of the children, in connection with the International Congress of Hygiene, have issued a statement that the relation of the mental and physical conditions of children to their educational requirements have recently been brought prominently under public notice in many ways, and that the committee consider it desirable that the experience recently gained should be rendered easily available to public bodies connected with educational matters, and to all teachers. This object they believed could be best effected by the institution of courses of lectures. At the last meeting of the School Board it was decided to refer the question to the School Board Management Committee.

* *

Dangerous Structures—Important Prosecution.—Before the magistrate at Marylebone, last week, the solicitors to the London County Council had fifty-seven summonses down for hearing under the Dangerous Structures Act. The defendants were mostly owners of property in Paddington, and the matters complained of had reference, in the majority of the cases, to copings and ornamental work at the upper parts of houses which had been allowed to get into an unsafe condition. The terrible accident at Kilburn, where three persons lost their lives and others were seriously injured through the falling of a large mass of copings, has decided the authorities as to the urgent necessity of making close investigations into the condition of similar work, and the fifty-seven summonses mentioned form only a portion of the action taken. In every instance where the dangerous condition had not been effected before the hearing of the summonses the magistrate made orders for the necessary repairs to be executed forthwith.

* *

Cholera: Its Starting Point.—The "holy cities" of Arabia—Mecca and Medina—might well lay claim to this unenviable distinction. The Medical Officer of Health for Bombay, in a recent report, shows that out of 91,000 Mohammedan pilgrims who have left that Indian city for Mecca during the past eight years only 60,000 have lived to come back; in other words, upwards of 33 per cent. have perished of cholera, small-pox, or fever contracted in the Arabian "holy cities," where cholera has its endemic home, and infectious diseases of every kind luxuriate in the filthy surroundings.

CORRESPONDENCE.

THE CHOLERA BACILLUS.

To the Editor of HYGIENE.

SIR,—I am one of those who firmly believe that the Cholera Bacillus is a myth. Sir Spencer Wells, in your number of July 14, says that "the poison (of cholera) *does not travel as a seed carried by the wind*, but it travels along the lines of human intercourse, slowly by pilgrims and caravans, rapidly by railways and steam vessels." How would he account for the following fact? In the year 1854 or 1855, H.M.S. *Britannia*, one of the old three-decker line-of-battle ships, was anchored in Besika Bay, and one night the whole of the crew that slept on the side of the ship next the shore were seized with cholera, whilst there was not a single case amongst the men whose hammocks were hung on the opposite side. Would he say that the bacilli were able to jump from the shore through the portholes nearest to them, but were not active enough to jump across the deck to the other side of the ship?

R. N.

ANSWERS TO CORRESPONDENTS.

Mrs. Slater.—The current volume of *HYGIENE* commenced with the number for May 13. We should recommend you to date your subscription from that period, as some of the back numbers are already becoming scarce.

Mons. Duttoit (Paris).—You can have *HYGIENE* sent direct from the publishing office if you have any difficulty (which, however, should not happen) in getting it through your bookseller.

F. C.—We are sorry you did not receive your copy of *HYGIENE* of the date you mention, and we send another. As more than twenty thousand copies of the number in question went out by post, the occasional miscarriage of a single copy is scarcely to be wondered at.

W. D. (Oldham) will shortly have an opportunity of learning all about Warner's Safe Cure if he will follow up the series of articles on Patent Medicines now appearing in our paper.

J. W. S.—Subscribers can have any analyses made at reasonable rates by sending to our Analytical Department.

Captain Dawson is heartily thanked for his good wishes.

L. R. C. P., Lond., writes congratulating us on our energetic exposures of quack medicines, and expresses his intention to purchase a few dozens of *HYGIENE* occasionally to distribute amongst his patients. He wishes us to make known this way of assisting us in our efforts, and he urges others to follow his example.

A Welsh Subscriber.—Thanks for the information you have given us.

A Sanitarian.—The author you must be thinking of is Charles Kingsley, who wrote forty years ago:—"The

question which is forcing itself more and more on the minds of scientific men is not how many diseases are, but how few are not, the consequences of men's ignorance, barbarism, and folly."

Mr. Harrison.—The matter shall receive notice in an early number.

Rev. J. Milner.—Communication received and inserted.

Lux.—We shall be glad to receive a copy of the paper.

A Rural Subscriber will find the question dealt with in an able article published in the current number by Dr. Thresh, medical officer of health for the Chelmsford and Maldon Sanitary Authorities, and medical officer to the Essex County Council.

An Army Surgeon.—Consult the "Manual of Military Hygiene," by Drs. Roth and Lex, published in Berlin some years ago.

W. T.—See *HYGIENE* for July 7.

Mr. Munro.—We cannot give any opinion without having a sample of the effluent for analysis.

Anxious.—We should recommend you to take no notice of the ignorant attack made on you by a member of your board. We are glad to see in the newspaper report that the chairman took him roundly to task. How such an ignoramus got appointed to serve on a sanitary committee is a mystery.

EDITORIAL AND PUBLISHING NOTICES.

EDITORIAL.—The Editor begs to express his thanks to numerous correspondents, and to state that he will be pleased to receive any articles or correspondence coming within the scope of *HYGIENE*, reports of medical officers of health, items of general or local sanitary interest, newspapers (marked at the part to which it is desired to draw attention), &c.

PUBLISHING.—The terms of subscription not having been raised, although under the new arrangement fifty-two numbers instead of twelve will be sent out annually, all subscriptions now running will continue good for the original period.

HYGIENE will be forwarded, post free, to all parts of the Kingdom, and to all countries within the Postal Union (including the United States, Canada, France, Germany, Belgium, Italy, Austria, Hungary, Spain, Portugal, Switzerland, the Netherlands, Russia, Denmark, Sweden, and Norway), on the following prepaid terms:—Twelve months, 6s. 6d.; six months, 3s. 6d. Subscription terms for Australia, India, the Cape, and all other parts of the world can be ascertained by inquiry at *HYGIENE* office.

ADVERTISERS are requested to bear in mind the greatly increased circulation of *HYGIENE*, with its weekly issue and reduced price. In addition to the large, regular circulation, many thousands of copies are distributed annually to sanitary officials, medical men, private addresses, public libraries, clubs, hotels, &c.

HYGIENE.

NEW (WEEKLY) SERIES.

Vol. VII. commenced with the Number for May 13th.

Chief Contents of May 13th Number :—

Public Health Reports.—Beauty: How to Preserve it.—Patent Medicines: No. 1. Mattei's Electro-Homœopathic Remedies.—Miss Buckland on Food.—British Health Resorts: No. 1. Swanage (*illustrated*).—The Anti-Adulteration Society.—Air and Light: A Doctor's Story.—Lead-Poisoning.—Dietetic Notices.—Hygienic Notes and News, &c., &c.

Amongst Contents of May 20th Number are :—

Hygiene in the Arrangement of Buildings.—Alcoholism in Relation to Public Health.—Cocoa and Chocolate (*illustrated*).—Public Health Reports: Kensington and Braintree.—Patent Medicines: No. 2. Clarke's Blood Mixture.—Hay Fever, Hay Asthma, or Summer Catarrh.—Reviews and Notices of Books.—Hygienic News and Notes.

Chief Contents of May 27th Number :—

Alcoholism in Relation to Public Health, by Professor Westergaard.—Public Health Reports: Lincoln, Leighton Buzzard, and Stourport.—Patent Medicines: No. 3. Clarke's Blood Mixture, Chlorodyne, and Opiates.—Hygiene in its Application to Buildings, by P. Gordon Smith, F.R.I.B.A.—Hay Fever, Hay Asthma, or Summer Catarrh.—A Yarn about a Boil.—Impediments of Speech.—The New Disinfectant, Izal.—Hygienic News and Notes.

Amongst the Contents for June 9th are :—

Gardens of Rest: The Cemeteries of the Future, by Rev. W. A. Willis.—Hygiene and the Arrangement of Buildings, by P. Gordon Smith, F.R.I.B.A.—Noxious Employments: Alkali Working, Bleaching Powder Making.—Hay Fever, Hay Asthma, or Summer Catarrh.—Public Health Reports: Ripley, Derbyshire.—Patent Medicines: No. 4. Revalenta Arabica.—Tobacco: Wellington and Napoleon.—Reviews and Notices of Books.—Hygienic News and Notes.

Chief Contents of June 16th Number :—

The Advantages of Public Abattoirs over Private Slaughter-Houses.—Patent Medicines: No. 5. The History of Patent Medicines; Sequah's Oil and "Prairie Flower" Mixture.—British Health Resorts: No. 2. Lowestoft (*with illustration*).—

Noxious Industries: Match Making, India-rubber Dressing, White Lead Works, etc.—The Power of Imagination Exemplified.—Notes and News.—Answers to Correspondents.

Contents of June 23rd Number :—

Shall we Lock up the Drink or the Drunkard?—Public Health Reports: Hanley, Staffordshire, and Kensington.—Patent Medicines: No. 6. Holloway's Pills and Ointment; the Sequah "Prairie Flower."—The Ventilation of Ships.—Reviews.—Hay Fever.—English *versus* Foreign Cocoa.—Anthrax, or Malignant Pustule.—The Hygienic Importance of Cleanliness; Public Baths.—Correspondence, News, Notes, &c.

Contents of June 30th Number :—

London Government, as It is and as It should be.—The Use of Steam in Weaving Factories.—An Age of Stimulants.—The Distinctions between Health and Disease.—Patent Medicines: No. 7. Correspondence concerning Holloway and Mattei.—Public Health Reports.—Hospital Accommodation in the Metropolis for Persons Suffering from Infectious Diseases.—The Manufacture of Mineral Waters.—Hay Fever.—News, Notes, Correspondence, &c

Chief Contents of July 7th Number :—

Cholera: Its Causation and Prevention. By Sir Spencer Wells, Bart., F.R.C.S.—Rural District Nurses. By Lady Victoria Lambton.—British Health Resorts: No. 3. Clacton-on-Sea and Walton-on-the-Naze.—London Government, as It is, and as It should be.—Notable Industries: No. 1. Bread and Bread Making.—Patent Medicines, No. 8.—Reviews: The Brighton Life Table.—Fashionable Follies.—News and Notes.—Answers to Correspondents, &c.

Chief Contents of July 14th Number :—

Public Health Reports: Kensington.—Hay Fever, Hay Asthma, or Summer-Catarrh.—Cholera: Its Causation and Prevention. By Sir Spencer Wells, Bart., F.R.C.S.—Patent Medicines, No. 9.—Allen's World's Hair Restorer; the Mexican Hair Restorer; Rowland's Kalydor; Gowland's Lotion for the Skin; Ruppert's Skin Tonic; Singleton's Golden Ointment; Mattei's Electricities. By the Editor.—The Manufacture of Mineral Waters. By T. P.—Bruce Warren.—Church Bells, a Nuisance in Large Towns.—News and Notes.—Answers to Correspondents, &c.

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WATER SUPPLY.

By ALEXANDER R. BINNIE, M.I.C.E., Engineer-in-Chief, London County Council

IN the forefront of our inquiries on the subject of a good water supply it cannot be denied that, however obtained and however treated from an engineering point of view, we must, in the first instance, secure a water of good quality and unimpeachable purity.

At first sight this may appear almost a truism, but, unfortunately, we do not find it to be either universally admitted or always observed in practice. For this we have to look to the great and almost general result of our modern modes of life and civilisation, which tend, more and more, to aggregate our population towards large centres of wealth and industry, and these, we observe, are generally situated on the banks of important rivers, or in river valleys not far distant from tributary streams. Not only are thickly-inhabited areas in themselves improper sources of water supply, but they are, also, directly the cause of pollution to the streams and rivers which flow through them. Consequently, we find many of the large towns of Great Britain which are governed by municipal corporations, such as Glasgow, Edinburgh, Lancaster, Manchester, Liverpool, Halifax, Bradford, Leeds, Belfast, Dublin, and many others, resorting at great expense to uncultivated and almost uninhabited tracts, and bringing the water from great distances so as to obtain a pure and uncontaminated supply.

When, therefore, we occasionally see large towns

and cities which have not considered it necessary to take these precautions or to incur the consequent expense, but still continue to drink the waters of rivers largely polluted by the more or less clarified sewage and the manure of populous areas, we are led to ask ourselves the question whether the large expenditure of capital that has been made in certain cases to obtain a pure water supply has not been an entire waste of our resources.

There can be little doubt that human beings can, for a considerable time, drink with impunity water largely contaminated with the excreta, both solid and fluid, of healthy persons ; and that they are able to do so with impunity, and without loathing and disgust, appears to be due to ignorance and apathy on the part of the water consumers, and to the power which rivers possess of apparently destroying and veiling the more gross and palpable polluting substances. There are some persons, no doubt, who teach that running water has the power of entirely destroying sewage and other polluting matter which may pass into it ; but there are few, let us hope, who would say that we can, with safety, drink water which has been polluted with the excreta of persons suffering from cholera, typhoid, small-pox, and similar diseases ; and yet this is practically the position taken up by those who advocate unreservedly the propriety of deriving supplies of drinking water from rivers, on the banks of which, at no great distance, are situated large towns, for sooner or later we must expect epidemics to arise even under the most careful management.

Of two facts we may feel quite confident—first, that water subject to pollution is a very potent factor in the spread of disease; and, secondly, that there is perhaps no readier mode of introducing into the human system any substance which it can absorb than by drinking it in the form of a solution. This being the case, it almost follows, as a natural consequence, that the utmost care should be taken to guard our supplies of drinking-water from contamination; and yet we see persons around us who shut their eyes to observed and well-known facts, and speak of the teaching of science and the experience of the world as sentiment, and who would continue to force upon a large number of their fellow creatures supplies of water contaminated with the excreta of millions of men and animals. That wells are frequent sources of death and disease, due to their contamination by house drains, is too patent to require a word of remark; and yet it required the cholera outbreak of 1849, and the deaths of some thousands of persons, to impress that fact on the people of London. And it appears to be forgotten that to drink river water polluted by sewage cost London in the cholera outbreaks of 1854 and 1866 the deaths of over 16,000 persons.

That people will go on for years drinking a supply contaminated by infiltration from graveyards, notwithstanding frequent warning, is proved by the outbreak of enteric fever at Cradley in 1888, which caused sixteen deaths in 113 cases.

The case of Lausen, in Switzerland, in 1872, proves that typhoid fever can be communicated by spring water flowing miles under ground from a neighbouring valley. The cholera outbreak in Spain in 1885 showed that, generally, the disease passed down the valleys, decimating the towns which drew their water from the rivers, but not affecting those which were independent of the rivers and had pure and uncontaminated supplies. In India the author has seen a town in which cholera had become endemic almost entirely freed from that dire disease simply by giving up the water-supply derived from a populous drainage area, and resorting to a purer and uncontaminated source. And the outbreak, four years ago, of enteric fever in the districts of Stockton, Middlesbrough, and Darlington, which derive their water supply from the river Tees, proves that the germs of that disease were not destroyed either by filtration, or in their passage for more than thirteen miles down that river from Barnard Castle.

All these are cases in which chemical science is of little assistance, as it is powerless to detect the germs

of disease; it can tell us of the presence of organic matter, but without a careful inquiry into the life-history of the water, it cannot pronounce that, under all circumstances, it is a safe and pure drinking water.

Nor from the experience of Valencia in 1885, and of Stockton and Middlesbrough, can we place much dependence on sand filtration as an effectual preventive of disease; sand filtration may arrest the living germs, but it is unable, apparently, to stop the passage of the minute spores from which they spring. The precipitation and clarification of sewage effluent by chemical agency, also, can hardly be relied upon, as it merely abstracts about one-fifth of the more solid impurity, leaving four-fifths of the dissolved organic matter to flow off into the river.

What, then, are we to expect from the continuance of supplies to large cities from sources so polluted, except that such cities may go on for years, perhaps boasting of the chemical purity of their water and their low death-rate, forgetting that the constitutions of their water consumers are being gradually prepared, by continually drinking small quantities of diluted sewage, to receive the germs of some violent epidemic which sooner or later will visit the sources of supply; and then will follow such an outbreak of disease and death as will cause consternation throughout the land.

PUBLIC HEALTH REPORTS.

St. James's, Westminster.—While most of the outlying metropolitan parishes are rapidly increasing in population, those situated more centrally either remain stationary in this respect or actually show a falling off. This is due partly to space being absorbed for street and other improvements, and partly to buildings—formerly utilised for residential purposes—being devoted to business uses. In the parish of St. James, Westminster, the resident population during the ten years preceding the last census dropped from 29,941 in 1881 to 24,993 in 1891.

In accordance with custom, the vestry clerk, Mr. Harry Wilkins, who, has lately contributed to our columns a comprehensive paper on "London Government as It is, and as It should be," has issued a voluminous annual report on all matters connected with the administration of Vestry affairs, this parish having a separate jurisdiction under the Metropolis Local Management Act. Although it does not occupy a very large area—162 acres—yet it is important by reason of its position at the West End, and it contains 12½ miles of streets. The number of inhabited houses is

given in the Registrar-General's return as 2,641. The ratable value is £745,000.

We learn from the report of Dr. Edmunds, the medical officer of health, that the number of deaths registered during the past twelve months was 446, giving on the 1891 population a death rate of 17·83 per 1,000. That of all London, for the corresponding period, amounted to 20·6 per 1,000. The total of notifications was 165, the principal affections being: 66 cases of scarlet fever, 27 of diphtheria, 22 of erysipelas, 14 of enteric or typhoid fever, and 4 of small-pox. Fortunately, although the cases of fever were unusually numerous, the rate of mortality was low from them as well as from other zymotic diseases. By the way, referring to notification, it appears from Mr. Wilkins' summary of the Vestry's proceedings during the year that the Vestry received a communication from the London County Council on the subject of the desirability of including measles among notifiable diseases. The Vestry replied that they did not think that any advantage would be derived, commensurate with the trouble and cost, by adding measles to the existing list. Such an opinion, however, is at variance with that which has been expressed in *HYGIENE* by many able sanitarians at various times.

The abstract of work done by the sanitary inspectors during the past year shows that they have been assiduous in their duties, of a class for the most part unseen, unknown, and consequently (we fear) somewhat unappreciated by the general public, although of great service in preserving the health of the community.

Dr. Edmunds is also public analyst to St. James, Westminster. He reports that during the year 60 samples were procured by the Vestry officers for examination, in accordance with the Sale of Food and Drugs Act. The majority were genuine, but five samples—four of butter and one of mustard—were found to be adulterated. In the case of the mustard, which contained foreign starch, the vendor was warned by letter from the Vestry Clerk; as regards the adulterated butter, two convictions were obtained on a hearing before the magistrate; one summons was withdrawn and another dismissed.

KENSINGTON.—Population in 1891, 166,308.—During the four weeks ended July 15 the births registered were 289, and the deaths 217. The births were 12 below and the deaths 23 above the numbers registered in the corresponding weeks of the previous ten years. The mortality rate was equivalent to 16·9 per 1,000 per annum, being in excess of the decennial

average, 15·1. Ninety-seven of the deaths were those of children under five years of age, including 76 who were under twelve months of age. The number of persons dying at the age of sixty years and upwards was 35. Zymotic diseases caused 44 deaths during the four weeks.

Speaking of scarlet fever, Dr. Dudfield reports that the spread of the scarlet fever epidemic in the whole metropolis is very decided, the number of cases notified in the four weeks being 3,772, an increase of nearly 1,000 over the preceding four weekly returns. The admissions to the infectious diseases hospitals have shown a reduced percentage as compared with those of the previous month, and this condition is unfortunately due to the insufficiency of hospital accommodation, so that many sick must have been kept at their homes instead of being removed for isolation. As Dr. Dudfield warningly says:—"The result cannot fail to be a still further spread of the disease; for, in the most favourable circumstances, many weeks, not to say months, must elapse before the accommodation overtakes the demand." At present we have the assuring fact that the case mortality is low, but the total deaths from this cause have considerably increased, and the epidemic might at any time assume a far more serious character. If any other infectious disease, such as small-pox, which is still threatening and above the average, or cholera, should attack London on an extensive scale, the authorities would be almost unable to cope with the pressure with the means of isolation at their disposal. In connection with this point, we may mention that in the four weeks ended on July 15 the number of notifications of infectious diseases in the metropolitan area exceeded that of any four-weekly period since the date when notification was made compulsory, viz., October, 1889.

A little time back the Medical Officer of Health and the Engineer to the London County Council reported favourably to the London County Council on the subject of furnace-destructors as a mode of getting rid of house refuse. Dr. Dudfield agrees with the conclusions at which they have arrived, and states his belief that the erection and utilisation of such destructors in his parish would be a distinct advantage from the public health point of view, while it could be effected without creating any nuisance.

Notifiable Diseases: Measles.—At the British Medical Association meeting, a resolution was passed urging the necessity of including measles in the list of infectious diseases of which notification should be required.

HYGIENE CONGRESSES.

IT is a sign of the times that questions of health should be thought of such importance that the chief magistrates of the cities of London and Dublin should, with the Lord Provost of Edinburgh, meet in the latter city to show their interest in the proceedings at the recent Congress of the British Institute of Public Health. The Institute held a somewhat similar meeting last year in Dublin; it proposes to hold its next Congress in 1894 in London. It is only of late years that gatherings to forward health matters have been organised in this country. In 1884 there was the "Healtheries" Exhibition, with its useful handbooks on sanitary subjects, and its conferences. In 1891 the International Congress of Hygiene and Demography met in London under the presidency of the Prince of Wales, who asked the pertinent question in respect of disease, "If preventable, why not prevented?" Now we have in our midst an Institute of Public Health holding annual conferences within the United Kingdom to urge the importance of sanitary improvement and the education of the people in matters of hygiene. There may be some danger of our having Health Congresses *ad nauseam*, but the excuse for them is not far to seek, and the excuse is their justification.

It is indeed impossible to overstate the importance of preventive medicine. Every old woman can quote the commonplace maxim, "Prevention is better than cure;" but how few there are, men or women, old or young, who act upon it! The neglect of it may bring to anyone early death in place of long life, or miserable existence instead of enjoyment and usefulness. The importance of this to the individual needs no demonstration, and to the nation it is enormous. We can even express it arithmetically, for the annual death-rates of certain diseases vary enormously in different districts throughout the kingdom. But death and physical deterioration of the people, which may be brought about under the operation of preventable causes of disease, are not the only evils. Similar causes, or at any rate some of them, are almost equally influential in lowering morality and impeding civilisation. Knowledge which has been gained on such subjects can be of little avail until it has forced itself or has been forced upon the public, and has cleared the barriers of ignorance and indifference. To these ends Hygiene Congresses are not only justified but are necessary.

A special feature of the Edinburgh Congress was the attendance at it of so many accredited delegates from municipal and other local authorities—chairmen of

health committees and medical officers of health. The Congress was presided over by Dr. Henry Littlejohn, the Medical Officer of Health for the City of Edinburgh and the President of the Institute, who has thus succeeded Sir Charles A. Cameron, Medical Officer of Health for the City of Dublin. The Institute has, therefore, been fortunate in securing for its earliest presidents two highly distinguished health officers, and, if it is to gain a fair footing in public esteem, it is obviously essential that the high standard of its first presidents must be sustained in their successors.

The work of the Congress was divided among three sections, viz., Preventive Medicine, Engineering and Building Construction, and Chemistry and Climatology. These were ably presided over by Dr. J. B. Russell, Medical Officer of Health for the City of Glasgow; Professor Armstrong, the Regius Professor of Engineering in the University of Edinburgh; and Professor Crum Brown, F.R.S. The subjects set down for discussion in the several sections were perhaps rather too numerous, and in future Congresses it will probably be better for discussion to be confined to some half-a-dozen subjects only of first-class importance to the public. No doubt more attention would be paid by the public, who in the absence of technical training are apt to become confused by the multiplicity and apparent confusion of material for discussion, if the number of subjects to be dealt with were smaller. Moreover, the nicety of points of difference are certain to be obscured in the weariness which multiple discussions invariably produce.

But, apart from the sectional work, the Congress was particularly favoured by the presence of the veteran Sir Spencer Wells, who addressed a general meeting on the subject of cremation. The discussion which followed was very interesting, being joined in by the Bishop of Edinburgh, and the meeting passed a resolution recognising the dangers attending on the present system of burying the dead, and recording its opinion that the time had now come when cremation should be adopted, especially in the case of death from infectious diseases. This was, undoubtedly, the most important of the several resolutions adopted by the Congress. It is undeniable that many cemeteries are being overcrowded with bodies, that more and more land for burial purposes is being required, and that some limit must, sooner or later, be put to the enormous interment which yearly takes place in this country. Land is, in places, becoming very precious, for our large towns and cities continue to spread rapidly, and the largest cemeteries are necessarily either adjacent to them or in their midst. Cemeteries may, sooner than the public think, become serious

menaces to the public health. Referring to the religious objections which have been raised against cremation, Sir Spencer quoted several well-known philanthropists and divines, among them being the late Lord Shaftesbury, Bishop Fraser, and Canon Liddon, the latter having declared from the pulpit of St. Paul's that "the resurrection of the body from its ashes is not a greater miracle than the resurrection of an unburnt body." The unanimity with which the delegates to the Congress accepted the resolution in favour of cremation is an important indication of the growing favour with which that method of dissolution of the body is being regarded in this country.

We shall watch with much interest the future work of the British Institute of Public Health, for it has set itself a task of no small proportions in its efforts to educate the public on questions so nearly affecting the latter. The recent Hygiene Congress has served a useful purpose, and may be productive of much good to many local sanitary authorities.

PATENT MEDICINES.*

By the EDITOR.

NO. XI. (NEW SERIES).—CLARKE'S BLOOD MIXTURE; THE ALLEGED TESTIMONIAL FROM THE LATE DR. SWAINE TAYLOR, F.R.S.; THE OVERSE AND THE REVERSE.

IN HYGIENE for June 30 we published a letter from Dr. H. C. Bartlett pointedly drawing attention to the circumstance that in the newspaper advertisements of Clarke's Blood Mixture the proprietors were making extensive use

* Some of the articles constituting this series have already appeared in HYGIENE when published as a monthly magazine, and were reprinted in two volumes. But as one of these—Vol. I.—is out of print, we propose, at the request of many readers, to commence a new series, as much of the matter will doubtless be fresh to the great majority of the readers of HYGIENE in its altered form. New reports and analyses will appear from time to time. No. I. (May 13th) included:—Patent Medicines; Patent Medicine Law; Mattei's Electro-Homœopathic Remedies. No. II.—(May 20th), Clarke's Blood Mixture. No. III.—(May 27th), Clarke's Blood Mixture; Chlorodyne and other Opiates. No. IV.—(June 9th), Revalenta Arabica. No. V.—(June 16th), The History of Patent Medicines; The Sequah "Prairie Flower" and Oil. No. VI.—(June 23rd), Holloway's Pills and Ointment. No. VII. (June 30th), Correspondence about Holloway and Mattei. No. VIII. (July 7th), Concerning Advertised Testimonials of Clarke's Blood Mixture. No. IX.—(July 14th), Allen's World's Hair Restorer; Mexican Hair Restorer; Singleton's Golden Ointment for the Eyes; Rowland's Kalydor and Gowland's Lotion for the Skin; Mrs. Anna Ruppert's Skin Tonic; Mattei's Electricities. No. X.—(June 28th), Quack Advertisements and Testimonials; Mother Seigel's Syrup; Clarke's Blood Mixture and the late Dr. Swaine Taylor.

of a testimonial alleged to have emanated from the late Dr. Swaine Taylor, who for many years occupied a prominent position in the analytical and scientific world. We had previously noticed this testimonial in print, and had formed our own opinion concerning its authenticity, an opinion which we found that we shared in common with Dr. Bartlett and others who had enjoyed the confidence and friendship of Dr. Swaine Taylor during this gentleman's lifetime. No one who knew him could possibly be brought to believe for a single moment that he could ever have drawn up such a testimonial—not, indeed, in favour of any advertised nostrum, but still less with reference to Clarke's Blood Mixture. Before proceeding further, we will give two quotations—one known to be in Dr. Swaine Taylor's own handwriting, the other taken from a gigantic advertisement of the Blood Mixture which appeared very extensively in the daily and weekly newspapers some little time back.

THE OVERSE.

(From the Report and Analysis of Clarke's Blood Mixture, published by Dr. Taylor in the *Lancet* of 1875, under the heading, "Quack Medicines.")

After describing the ingredients (see HYGIENE for May 20), Dr. Taylor wrote:—"Why such a mixture as this should be designated a 'blood mixture' and a 'blood purifier' is incomprehensible. It has no more claim to this title than nitre, common salt, sal ammoniac, or other saline medicines which operate on and through the blood by absorption. Its properties (*i.e.*, those of iodide of potassium, the chief ingredient) are well known, and there is no novelty in its employment. The only novelty in this form of mixture is that the iodide is dissolved in water coloured with burnt sugar, and that it is described as a 'blood purifier.' The four doses directed to be taken daily represent sixteen grains (of iodide of potassium), and if the patient taking it is not under medical observation such a daily quantity as this may accumulate in the system and do mischief. In some constitutions the iodide of potassium frequently taken proves specially injurious. It produces iodism."

We may mention here that iodism is the condition in which symptoms of poisoning of the system show themselves, very similar in character to the salivation, &c., observed in cases of gradual mercurial poisoning. Very often even small doses, such as a grain, if repeated several times a day, will occasion serious effects. Indeed, as a high authority on the action of drugs says, "Iodide of potassium sometimes produces distressing depression of mind and body. The patient becomes irritable, dejected, listless, and wretched. Exercise soon produces fatigue, and perhaps fainting." The same writer also

remarks, "A grain, or even less, may affect the stomach." Yet the printed directions enclosed with each bottle, after recommending this preparation as a never-failing cure for a whole host of diseases, actually state that it is "warranted free from anything injurious to the most delicate constitution of either sex."

But we are not now reporting upon the composition and nature of Clarke's Blood Mixture; we did that at full length in *HYGIENE* for May 20, and what we have under examination at the present moment is the question of the genuineness of the alleged Swaine Taylor testimonial. We will therefore quote what we may term

THE REVERSE.

(Cutting from an advertisement of Clarke's Blood Mixture, contained in a London daily paper, June 20.)

"CLARKE'S BLOOD MIXTURE is entirely free from any poison or metallic impregnation, does not contain any injurious ingredient, and is a good, safe, and useful medicine."—ALFRED SWAINE TAYLOR, M.D., F.R.S., Lecturer on Medical Jurisprudence and Toxicology.

It is absolutely impossible to reconcile these two diametrically opposite statements. The Obverse, known to have been written by Dr. Swaine Taylor, embodies the deliberate expression of a man of science, the words are well weighed, and their writer is evidently prepared to prove up to the hilt everything that he has said. But when we turn to the Reverse, what do we find? A positive denial of everything that Dr. Swaine Taylor had previously published, and which had gone uncontradicted for the simple reason that it was all true. Continuing our metaphor of a coin, though the Obverse is of good sterling metal, the Reverse is too brassy to be allowed to pass. If the coin were actual instead of metaphorical, the Reverse would speedily insure for it the fate of the spurious bits of metal that one sometimes sees in a village shop nailed to the counter as a fictitious sham and a warning to evil-doers. Is there any human being outside Colney Hatch or Hanwell Lunatic Asylums who would attempt to uphold the argument that the same man who wrote the first opinion also penned the second? Scientific men of high reputation and honourable position do not "turn about and wheel about" in this Jim Crow fashion. Of all with whom we have been acquainted during a long experience, we cannot point to one less likely to "give himself away" in this incomprehensible style than the late Dr. Swaine Taylor.

In a former number of *HYGIENE* we put the following questions to the proprietors of Clarke's Blood Mixture:—1. When, where, and under what circumstances did Dr. Swaine Taylor give the alleged testimonial? 2. By whom was his signature witnessed? 3. When and where

can the original be inspected? To these questions we would add yet two others, namely—4. Why did the proprietors of the blood mixture withhold from public knowledge so important a testimonial until years after Dr. Taylor's death? And 5. How do they account for using it so extensively directly after we published his undoubted and unchallengeable opinion in our article of May 20 on Clarke's Blood Mixture?

They have had a long interval in which to answer the first three queries, but they have remained carefully dumb. Having promised Dr. Bartlett in his fatal illness that we would follow this matter up, we shall not shrink from fulfilling our undertaking. On July 24, only six days before his decease, Dr. Bartlett dictated a letter which was forwarded to us, in which he said that, feeling that the hand of death was upon him, he must try to complete earlier than he had intended the evidence which he was able to give concerning the alleged certificate advertised by the proprietors of Clarke's Blood Mixture. He goes on to relate that he was standing in the office of a gentleman whom he names, and that, Mr. Clarke happening to come in, this gentleman began to tease Mr. Clarke on the subject of Dr. Taylor's report. "Mr. Clarke laughed and said, 'I shall wait a few years till the old fogey is dead, and then no one can prove that he did not give me a certificate.' Shortly after this" (continues Dr. Bartlett, in what might almost be termed his dying deposition) "at one of the final meetings of the Arsenical Wall-Paper Committee of the Society of Arts, I met my dear old friend (Dr. Swaine Taylor). I simply told him what Mr. Clarke had said. He was horrified, and exclaimed, 'Defend me if he should carry out his threat, and you may say that I never did, and never should, give a certificate for any such article, and I certainly never gave one for Clarke's Blood Mixture.' If the condition I am now in," concludes Dr. Bartlett, "adds anything in solemnity to the above-given plain statement of facts, let it be so; but I have now carried out my duty to my old friend, Dr. Alfred Swaine Taylor." (Signed) H. C. BARTLETT.

As Shakespeare wrote, "The tongues of dying men enforce attention." We can draw but one inference from all the circumstances of the case; and we will leave our readers to form their own conclusions, which will doubtless coincide with those to which we have been irresistibly impelled.

New Infectious Diseases Hospital for Croydon.—The Croydon Council have resolved to erect a new fever hospital within the limits of the borough at a cost of twenty-three thousand pounds.

ATHLETIC SPORTS IN THEIR RELATION TO HYGIENE.

By HENRY HOOLE, M.D. (Lond.).

Author of the "Science and Art of Training."

Part I.—THE EVOLUTION OF SKILLED MUSCULAR EXERCISE.

THOSE who have carefully watched young children at play must have noticed the extreme delight they experience in the mere movements of the body and the limbs. In these exaggerated and apparently purposeless actions they are instinctively gratifying the appetite "Exercise,"—an appetite or want of the organism, daily recurring, felt at every period of life, but most intensely felt in youth. When its demands are reasonably satisfied the beneficial effects upon the human economy are, even to a superficial observer, at once apparent; the mind becomes tranquil, the heart throbs stronger, breathing is deeper, the appetite keener, and other less important functions of the body are more harmoniously performed.

The lesson of the dependence of health and strength upon muscular action, if not an intuition of primeval man, would soon have become one. In those remote ages, when he shared with animals not more savage than himself the shelter of sunless forests, he, without doubt, quickly discovered the potential energy stored up in his thews and sinews, and, as quickly, acquired the knowledge of rightly applying it.

The able use of man's first weapons, the club, the stone axe, and stone-tipped arrow, preserved his life under most adverse circumstances. Again, exercise so developed his bodily and mental powers that, naked or but scantily clad, he could endure indifferently the icy breath of winter or the burning rays of summer, and successfully strive with or attack the fiercest and subtlest of brutes.

Stalwart frame and muscular adroitness represented then the highest point of human development. The savage who could best bear exposure, fatigue, hunger, and thirst, whose skill enabled him to obtain food and raiment when others failed, would obviously be selected by his fellows as their chief. Woman, through instinct of self-preservation, would seek his protection; his children would be more likely to reach maturity; and, according to the law of the survival of the fittest, his race would not readily become extinct. Another great inducement to muscle culture was the desire, which unhappily still lingers in civilised man, to wrest from his fellow-savage the most valuable of his possessions.

While man was thus living in the hunter state, one

may reasonably conclude that the exercises most favoured and most cultivated were such as served the purpose of offence, defence, and the acquisition of property. Among the earliest of the offensive games may be reckoned wrestling, the use of the club, the spear, the bow, and, as a more deadly mode of hurling stones, the sling. Now, with regard to defence, is it not feasible to infer that on many an occasion our remote ancestor saved his life by the agility with which he leapt over the fallen forest timber, by the speed with which he fled across the treeless plain, and by the skill and vigour with which he dived into and breasted some rain-swollen stream? An infuriated enemy in the rear would have given him a very limited selection of paths, and but a few moments for choosing.

The mental as well as the physical condition of mankind was, however, progressive, and to the hunter state succeeded the pastoral and agricultural. Man learnt the arts of cultivating the soil, of reclaiming wild animals, and of reducing them to domestication. He became an expert horseman, and could ride at full speed without saddle or bridle. Hunting was not followed exclusively for the purpose of procuring food and clothing, or for ridding the neighbourhood of obnoxious or dangerous animals, but as a pastime, and, like dancing, formed a recreations of peace. Warfare, too, had grown into a science, and intricate and complicated methods of attack and retreat were now employed.

There is very early evidence in the world's history both of the esteem paid to martial accomplishments, and also of the systematic physical culture of the young. Sixteen hundred years before the Christian era it was decreed in ancient Egypt that all male children born the same day as the son of the king should be set apart, and reared in such a way as to strengthen the body, increase the courage, and make of them able warriors for their future monarch. Even eight hundred years later muscular training greatly concerned nations who might boast some degree of civilisation. The Spartan scheme of education, for instance, is well known. All feeble or deformed children were killed at birth; at seven years of age the boys were removed by the State from the parents' care, and were educated until manhood. This education consisted mainly of gymnastic exercises, athletic games, hunting, and the discipline calculated to render them effective combatants. The girls, too, were inducted no less carefully into nearly similar sports. Domestic life must have been a mockery, for the men lived alone in barracks, passed their time in drilling, in the chase, or teaching the children, and visited their homes and their wives only by stealth.

As a proof of the respect paid by the Romans in the early days of the Republic to the warlike art, I may mention the invocation in their litany for the blessing of Mars upon the spearmen. Again, the nation was almost one standing army, for up to two hundred years B.C. every citizen between the ages of seventeen and forty-six was liable to military service; each household was bound to furnish one foot-soldier, and every ten households one horseman. The discipline was Spartan-like in severity, and the soldiers were trained to march long distances, to carry with ease heavy weights, to erect quickly impregnable camps, and to fight skilfully and bravely.

Thus, through countless ages, from that period of human existence which is lost in impenetrable gloom until just before the commencement of the first century, one of the chief concerns of man, it may be reasonably concluded, was physical education. Exercise—the instinct planted within his body—had taught him not only to maintain his health, but to preserve his life. It had encouraged the free use of his limbs and senses; his movements both upon the land and in the water equalled almost in speed and adroitness the brutes of the earth. His foot was as sure as an antelope's, his vision partook of the keenest of the eagle's, his hearing and scent approached in acuteness that of the most cunning of animals; while superior in intellect to all created beings, he walked the earth and stemmed the waves, their lord and master.

In the physical and mental attributes of the savage of the present, one may gather what pre-historic man was in the past. Races are known who still live in the hunter state—in North-East America a tribe whose sole weapons of defence are the stone hatchet and stone-tipped arrow. The islanders of Tierra del Fuego go unclad in a climate almost arctic, do not cook their food, and use the sling as an offensive weapon. The Bosjeman of South Africa is noted for his keen sight, his sure and alert movements, his skill as a hunter, and his powers of enduring fatigue and exposure. The Polynesians say they contracted colds from the time they commenced to wear clothes; and a chief admitted that the abduction of women, and what is now termed "land-grabbing," were the main causes with them of quarrels and of war. The nomadic Mongolian tribes, who live a purely pastoral life, possess to the present day a marked ability in taming and domesticating animals; while Stanley, again, in his recent explorations, has made us acquainted with communities in Central Africa who, having advanced in civilisation to the agricultural state, sow and reap their grain, and cultivate their fruit and vegetables.

Higher mental qualities, the standard of excellence

among civilised people, are as incapable of recognition by the savage of to-day as they were by his ancestor two thousand years ago. The ideal man of both is the warrior of large stature and iron muscle, fearless and fatal in attack, swift and able in retreat.

Tales of ancient feats by flood and field must necessarily be more or less fabulous. Are they not perchance mirrored in the fortitude, the forest-craft, and the unning powers of the North American Indian; in the daring horsemanship of the wandering races of Central Asia; in the diving and swimming exploits of the islanders of the Southern Seas; and in the intrepid management by the West African of his slender canoe? May one not, therefore, surmise that primeval man, upset far from land out of his frail bark, chased by an infuriated tribal enemy, or hunted by wolves upon the frozen steppes, although no timekeeper or referee, watch and tape in hand, was present, established records in swimming, leaping, and running, unsurpassed by the athletes now most renowned in these departments of sport?

Enough has, probably, been said to show how from one of the primary wants of the body muscular dexterity has been evolved. The age of reason was dawning, and each succeeding generation of man saw a further expansion of his intellectual powers, and a corresponding improvement in his surroundings. His aspirations and capacities were higher and wider, so that means other than muscular were employed to satisfy his passionate desires. There was no longer the necessity to hunt from morn till eve to obtain food and raiment; walls and other defences protected him from sudden onslaughts of enemies; the knowledge of agriculture and of pasturage had endowed him with fruitful fields and teeming flocks.

Woman, too, had not to be won at the point of the sword or dazzled by the display of martial address. She could be gained by the sure possession of the material comforts of life, and by the esteem in which the wooer was held by her kindred. This esteem, again, was not entirely based upon physical qualities. Powers of administration, of organisation, of advising rightly and promptly in times of imminent peril, superior knowledge of the healing art, of tillage, and of breeding stock, together with proficiency in the gentler amusements of leisure, as music, poetry, and dancing—these were now coveted and honoured acquirements.

Moreover, the display of warlike feats were of themselves insufficient to satisfy the self-esteem of the ambitious, or to excite in others the sense of awe and wonder. Like the haughty patrician who even deemed hunting a recreation beneath his dignity, the leader reserved his prowess for the battle-field and, in times of

peace or of freedom from the irksome duties of camp, gratified his love of sport by watching the brawny adroitness of his inferiors or of slaves trained in all the known arts of the gymnasium.

Mankind, however, was but partly civilised, and neighbouring countries were usually inimical and aggressive. Reason therefore counselled both the heads of States and individuals not to entirely neglect those means upon which depended the integrity of the nation and the preservation of life and property. Another strong motive for the encouragement of outdoor diversions was the fact, now better appreciated, of the importance of exercise in the maintenance of health and strength.

In the history of our country this question of physical education has until a recent date claimed a large share of the attention of those who held the reins of government. During the Saxon dynasty the young thane was instructed in casting of darts, hunting, wrestling, running, leaping, and other acts of bodily address. Literature was despised. At twelve years of age the renowned Alfred could not read, but the chronicler states with pride that he was already "a most expert and active hunter, and excelled in all the branches of that most noble art." Some of the more ancient methods of attack were still extant, as slingers and casters of stones formed a regular portion of the Saxon army.

The Norman invasion and the subjection of the Anglo-Saxons to a more refined race profoundly affected the military exercises and the recreations of the nation. From this epoch arose a more marked separation of manly pursuits into those necessary for the sterner affairs of war and those for the beguilement of peace. Into both these divisions, again, a class distinction was imported which lingers to the present day. The nobles, for instance, practised the use of lance, mace, battleaxe, shield, and sword, and as it was deemed a high disgrace to be unseated, acquired the thorough command of the horse. For recreations they selected such as would develop the body and inure it to the hardier feats of the fray; wrestled, swam, ran foot races, tilted at the ring, and followed the chase. Besides being skilled in the above, the courtly Norman was expected to be an able carver, a graceful dancer, a proficient musician, and to possess the moral qualities of truth and courage. Those below the rank of a knight were not permitted either to joust or to take part in the tournament. The arts of defence for them were the use of the sword, the pike, the dagger, and the bow; their chief diversions to wrestle, run, leap, tilt with poles at each other or at the quintain, fight with clubs and bucklers, ply the quarterstaff, and throw spears at a mark.

The most popular art of the bulk of the people was without doubt that of the long bow; and as under the Plantagenets it had become in the hands of the English soldier a most deadly weapon, each successive government was jealous to maintain its efficiency. Thus, in the thirteenth century every person whose revenue from his land did not exceed one hundred pence was commanded to keep a bow and arrows. Similar statutes followed. The sheriffs of London were ordered, under the penalty of imprisonment, to see that the citizens spent their leisure time and their holidays in the practice of archery. These ordinances were needed for other reasons besides the neglect of martial pursuits. The nobles and clergy were addicted to gambling with dice, and the vice had spread to the lower orders, who in addition strongly favoured what Edward III. designated as "trivial, useless, and unlawful games." The reprehended and prohibited pastimes were tennis, football, fives, bowling, and others which approached in character the modern sports of pitching the stone, throwing the hammer, and tossing the caber.

The long wars with France, and, later on, the internal dissensions of the country, removed, however, all fears of widespread effeminacy; and it was not until the latter part of the reign of Henry VII. that the Government had again to take stringent measures in order to cope with the physical degeneracy of the people. From time to time unequivocal signs of luxurious habits had shown themselves among all ranks of society. Tournaments and jousts were held but spasmodically, more for the purpose of displaying magnificent attire and splendid steeds than of exhibiting ability and courage. Indeed, by the middle of the sixteenth century this far-famed method of fighting was practically obsolete. The influence of literature, moreover, was making itself felt throughout the whole of Western Europe; and the neglect of letters by the nobility had enabled men like Cardinal Balue in France and Cardinal Wolsey in England to become powers in their respective States. Gunpowder, too, had been invented, and was coming more and more into warlike employment. All these factors materially affected the character of military exercises and outdoor amusements. Among sports, as among species, it was the question of the survival of the fittest; the long bow had supplanted the sling to yield, in its turn to the crossbow; this, again, as the musket became perfected, grew less in vogue, and rapidly fell into disuse.

Henry VIII., following in the footsteps of his father, made a strenuous effort to resuscitate the ancient pastimes. By precept and by example he showed himself to be an earnest apostle of physical culture. He created

into a corporation, called the "Noble Science of Self-Defence," the professors of the long sword, back sword, rapier and dagger, sword and buckler, pike and halberd, and permitted this corporation to license teachers.

Furthermore, he made it a penalty of £10 to keep the crossbow in a house. It was in vain. Neither royal patronage nor severe laws could galvanise into fresh life these almost moribund mediæval sports. Commerce was rapidly expanding, land around the large towns was increasing in value, and the archery butts were soon enclosed. The energy of the nation was drifting fast into mercantile channels, for our insular position protected us from war and favoured trade. The courtiers and the citizens grew richer, more addicted to literary pursuits, and at the same time less and less familiar with the implements of war. Wealth brought in its train luxury and licentiousness, and these promoted a distaste for physical exertion.

On the accession of the Stuarts there was indisputable evidence of serious emasculation, and to counteract it James the First encouraged both on Sundays and on holy days "dancing, leaping, archery, vaulting, and other harmless recreations." Public games on the Cotswold Hills—the precursor of the sports of the London Athletic Club—were held annually through his patronage, and continued without interruption for forty years. The troubles of the Commonwealth and the strong puritanical feeling of the middle class, who regarded innocent open-air amusements as "unrighteous," effectively stopped further development in this direction. From then to the end of the last century a stagnation in athletic games supervened, the result of prejudice, increased wealth, and of prolonged peace. In the country, it is true, the gentry rode horse races, hunted the fox and stag, and in a mild way hawked, while the rustics played foot and club ball, wrestled, pitched the bar, and threw the hammer. The nobles, however, about the Court regarded violent muscular exertion as unfitted to their rank, and took but a languid interest in the contests of professional athletes. With the less exalted citizens pugilism and pedestrian matches were decidedly growing popular, and cricket was slowly being evolved. The use of the small sword still survived among gentlemen, as duelling was the customary mode of settling affairs of honour. Life and property had now other safeguards than personal prowess. If the trader on long journeys thrust pistols into the holsters, or buckled a sword to his belt, it was merely as a show of defence; in nine cases out of ten his right hand had long lost its cunning.

The present century had almost dawned before our forefathers commenced to lose their indifference to active

exercises, and to evince the desire to compete where hitherto they had only cared to patronise. Gentle and burghess now engaged in contests of bodily skill; cricket and rowing grew rapidly into favour; a modified form of archery attracted considerable attention from both sexes; while at the public and military schools, and at the universities, a rough system of physical education was pursued. In the year 1849 the Royal Military Academy held the first annual athletic meeting, other institutions followed, and the extension of the Volunteer movement throughout the country rapidly increased their number. A distinction then arose between the amateur athlete, who contended for honour, and the professional, who made his art his livelihood. It is with the former, and the former alone, that my further remarks have to do.

The period had long gone by when war, and the preparation for war, claimed so much of the time of each male subject. The steel of the sword had verily been converted into the ploughshare. The sling, the battle-axe, the long sword, the lance, and the long bow were extinct weapons, and their art a lost one. If some war-like exercise remained, it was in an altered form, and had been degraded into a pastime. Of such, of the games stigmatised by Edward III. as "trivial and useless," and of the time-honoured diversions of swimming, running, leaping, and wrestling, with the addition of a few introduced within recent years, our modern athletic sports are composed. But whatever their origin, or whatever their modification, one of the motives which called them into existence still survives unchanged and unabated: it is the preservation of health and the maintenance of physique.

(Part 2, "Modern Athleticism," will appear in a subsequent number of *HYGIENE*.)

AN AGE OF STIMULANTS.—No. 3.*

By J. MURRAY GIBBES, M.D., Mooroopna, Victoria.

IN my last article I endeavoured to show how indigestion is caused by our wrong food customs, the large quantities of meat eaten requiring a large quantity of tea and other food retarders to be drank, thus entailing nervous debility. The colonies of Australia and New Zealand, to say nothing of other parts of the world, are pouring their meat supplies into Great Britain. This must lower the price of meat, and the consumption of it will increase. The consequence will be that the amount of food-

* The two previous articles of this series appeared in *HYGIENE* for June 30 and July 31.

beverages taken will also increase, both in the alcoholic and the non-alcoholic forms. Teetotalism counts its devotees by hundreds of thousands in England, and yet the sale of intoxicating liquors increases yearly. The reason is that the increased consumption of meat requires an increased consumption of digestion-retarders, and those who take them in the alcoholic forms will take increased quantities. The object of teetotalism is grand and noble, but, as at present carried out, it does not do the good it might were its followers more acquainted with the laws of food. The nervous system is being stimulated to a too high degree at present, and nervous debility is a consequence, nervous dyspepsia being one form of it.

The human body is a machine which is worked by nerve-force, and is endowed with powers of keeping itself in repair. This power is enjoyed also by members of the vegetable kingdom, for if a tree is wounded a healing fluid is thrown out to cover the wounded surface. This fluid hardens, and in time completely heals the wounded parts. If the tree does not obtain suitable or sufficient nourishment, this process cannot take place; the power of keeping itself in repair and in health is weakened or lost, and it dies. The same holds good with the human machine, if a too stimulating food is taken. We have high-pressure and low-pressure engines, and we have also different human constitutions. The human engine is at present being worked at a very high pressure, like the Mississippi steamboats during the racing days, and is it therefore to be wondered that so many human engines go wrong? The steam-generating parts of an engine correspond with the brain, and the boiler and fire-box with our digestive organs. Engines go wrong in different parts, and so it is with our systems—some go wrong in the brain and nervous system. But it is all from the same cause; we are living in a high-pressure age on a high-pressure diet. Can the human system stand this sudden great strain? What will the result be on the national constitution?

A vast change is taking place in our constitutions, and rapidly taking place. In the colonies we see a different race springing up—a race which seems to have little of the typical John Bull in it. Solid food and alcoholic beverages produced the typical John Bull—a splendid muscular man; but the rising generation have limbs not like the traditional Mullingar heifer—all beef down to the heel—but like the antelope. Tall, graceful, Grecian-faced young people, who are little calculated to undergo the privations and hardships their fathers had to go through in the gold fields of Bendigo or the battle-fields of New Zealand.

What is wanted at the present time is a radical change in our food customs, and especially in those of the young. Instead of young children being forced, they require to be kept back and fed on milk food principally for the first few years of their lives. Precocious children are precarious-lived children. Tea, meat, and education are brain stimulants, and the less very young children have of them the better. Many a mother would be horrified at the suggestion that her young child should drink beer or wine, and yet she will unhesitatingly give it plenty of tea, which is worse. Youth is the animal period of life, and alcoholic stimulants are less harmful at this period than the non-alcoholic ones. I make this statement notwithstanding the fact that I am nearly a lifelong abstainer. I consider stimulating beverages, whether alcoholic or non-alcoholic, most harmful for young children, for children want full play given to their digestive ferments, and so also do people with weak digestive organs. The radical change required in the present food customs is that more fruit should be taken, both fresh and dried. It should no longer be considered a luxury, but a necessity. Fresh fruit is not always obtainable in England at present, but before long Australia will be pouring her rich fruit treasures into the old country, when all will be able to get it in abundance. Near where I live, in the Goulburn Valley—or the Golden Valley, as it should be called—there are orchards of thirty, sixty, and ninety acres of peaches and apricots, and in course of time the produce of these and similar orchards will be carried to England, and the same will occur with grapes, which are sold here at 1½d. and 2d. a pound. Experience is wanted only as to the best way of sending them and the proper temperature they should be kept at on the voyage, and then fruit ships will regularly arrive at English ports from Australia at a time when fresh fruit is not obtainable at home, our summer being England's winter and *vice versa*. Australia is indeed an undeveloped Land of Goshen, and will be of incalculable advantage to the parent country.

It may be thought, from the way I have written about tea, that I put down to it most of the ills man suffers, but this is not the case. I consider tea an excellent beverage, and, as a restorative to the weary, nervous system, it is unequalled; but, like everything else in this world, it contains good and evil—good when it is rightly used by those whom it suits, and evil when it is given to the young or to those whose digestive powers are weak. This being my opinion and experience, I shall, in my next and concluding article, give a substitute for it, and an Australian substitute.

Fruit, either fresh or dried, contains vegetable acids

which are digestion-retarders. Experience teaches us that it should be taken at the conclusion of our principal meal, and the custom is right, for fruit retards the too rapid digestion of the meal. Fruit is a pure digestion-retarder, whilst alcoholic and non-alcoholic beverages are impure substitutes. Too much fruit is bad, and so is fruit if taken at night time. As the proverb says, "Fruit is gold in the morning, lead at night."

(*To be continued.*)

CORRESPONDENCE.

THE VENTILATION OF SHIPS.

To the Editor of HYGIENE.

SIR,—I have for a long time studied this question, on which you had an article in *HYGIENE* of June 23. Nothing involving such important consequences is more easy and inexpensive to effect, and when properly dealt with and looked after failure of action cannot occur. All this applies from the largest and most complex ship in the Navy down to the lowest trading vessel with only a "forecastle" honestly and comfortably contrived to protect poor "Jack," at least in his hours of rest and meals, from rain and cold and draughts. The ventilation required, however, if it is to be first-class of its kind, must have the air moderately warmed or cooled, *at the instant*, according to the requirements of climate or season.

How to proceed in the construction of the right apparatus.—This must be left till the vessel is nearly ready to go to sea—all its permanent fittings fixed. Say a steam company's monthly packet, with a crew of 20 or 30 sailors and accommodation for 100 passengers, first and second class, sailing, for example, from Glasgow to Montreal. Suppose the funnel in the centre of this ship, and a mast between that and each of the two ends. Below the deck an entire length of floor of goodly height from bow to stern, ample scope for machinery, and cabins, and rooms—every possible requirement met as for a comprehensive population on land; yet here "cribbed, cabined, and confined." All the space below this floor, save the central space for the machinery, the *exclusive* receptacle for freight.

The ventilating appliances, whether for warmed or cooled *fresh* air, are identical in construction—a series of strong iron tubes, in bore from two to three or four inches at least, each series ranged closely round mast or funnel. They ascend from twelve to twenty feet from the deck, which they pierce, their top ends bent in half a circle. A crossing or two of wire guards the

entrance from birds. In emigrant or war ships this cincture of ventilating tubes may consist of many layers without detriment to their function. The ceiling below affords ample scope for their ramification in every direction, discharging their tribute of pure atmosphere with a liberality of allowance all true sanitarians will rejoice in. The whole is under easy control, yet with infinite scope for every scale and every need. This roofing of pipes in cabins, &c., is walled off from the general space by its floor. No ceiling ornamentation below will be interfered with.

For complete ventilation the second grand requisite is a corresponding series of pipes to carry off the used-up atmosphere. This is discharged—sucked in, we might say—into a corner of the boiler-furnace, or into the chimney, as close to it as possible. The small holes for the exit of the foul air will effectually remedy the tendency to pernicious draughts. In all cases the measure of the inlet of fresh air will be the measure of the outlet of that used up. In this way we establish our circulatory round. If properly done, no one on board breathes the same air twice.

I have shown here in a few words the whole of the case of the transformation of things required for the effective sanitation of sea-faring life—so far as the constant breathing of pure air is concerned.

To good workmen a very slight hint of the right road to take in accomplishing any specific issue is quite sufficient. All the details and modifications of old work to new ways will now occur to them. All the rest may be safely left to their good sense, their innate ambition to excel, and their acquired habits of exactitude. Nevertheless, as the field of operations now suggested will be an experience new to many, I may perhaps be pardoned if I suggest further a few practical working points as matters of the first consideration.

First.—The air pipes girding round the ship's funnel will only be called into play as ventilators when the weather becomes as cold as would justify in houses the lighting of fires. Our apparatus, however, has a further specific use. Everywhere we want more and larger hot water tanks and appliances in our dwellings for bathing purposes and for laundry work. In our big war ships this is as great a necessity for the men as it is in our Atlantic liner, with 600 or 800 emigrants on board. With our hot-air system and the modifications of work it may be applied to, a "temperate climate" by-and-bye will be the order of the day, easy and cheap to achieve, in hot climates as easily as in cold or even Arctic regions by the use of artificial ice, which can be made for 3s. a ton. With chambers or passages full of this material,

tubes may be so regulated in temperature in tropical climates that existence in England's dependencies and colonies will become a different thing both to Europeans and natives.

Second.—A great modification of the chimneys of all steam engines on sea and land may be expected from the hint I now give, viz., that in most cases the departing gases which at present poison the atmosphere should at least pay tribute by imparting their heat to what may be called supernumerary or incidental apparatus, yet of the first necessity to man.

Third.—Whenever practicable we should not fail to use square tubes as the thing most proper for the pipes claspings the masts and funnels. Thus we have a solid congeries of metal rings with no cold air interspaces as in bundling round tubes together must occur.

Fourth.—The construction of ships as now modified by the palpable advantages of the cellular system or watertight divisions will largely facilitate the introduction of the hot or cold air system into these convenient interspaces.

Yours faithfully,

JOHN BALBIRNIE, M.A., M.D.

NEWS AND NOTES.

The Cholera.—The Local Government Board have given official sanction to a proposal, made by various sanitary authorities in Kent, for fixing a station where any ship certified to be infected with cholera may be moored or anchored until the requirements of the regulations have been duly fulfilled. The part selected is at the mouth of the Swale River, north of Shell Ness, and north-east of Whitstable Flats.

The London County Council and the Shop Hours Act.—A correspondent has drawn the attention of the London County Council to the fact that the Shop Hours Act, 1892, was daily ignored by the majority of the shopkeepers in the Metropolis, and inquired whether it was their intention to appoint permanent inspectors to enforce the Act, as well as whether any Shop Assistants' Society could undertake prosecutions on their own behalf, and, if so, whether the Council would help financially towards defraying the costs of such proceedings. The following reply has been received:—"London County Council, Public Control Department, Whitehall Place.—Sir,—Referring to your letter of July 24th, I have to inform you that the Council has appointed inspectors under the Shop Hours Act, 1892, and that active measures have been taken to rigidly enforce the Act. I am not prepared to say that private persons or bodies would be precluded from taking any proceedings under the Act. The proceedings would pro-

bably be much prejudiced if they adopted that course. The Council has no power to assist financially in any such proceedings. Should, however, you be able to give the Council any particulars of specific infringements of the Act, they will be duly investigated and action taken in accordance with the nature of the offence.—I am, Sir, your obedient servant, ALFRED SPENCER, chief officer."

The Sale of Poisons.—At the recent meeting of the British Medical Association, at Newcastle-on-Tyne, it was reported by the Parliamentary Bills Committee that progress was being made towards securing the more adequate administration of the Pharmacy Act in regard to the sale of poisons; but it was as yet an open question whether the law should be put in force by the public authorities or by the Pharmaceutical Society. The Committee deprecated the exemption from the Act of certain patent preparations containing scheduled poisons.

Heavy Penalty under the Explosives Act.—At the South-Western Police Court, a firework manufacturer, carrying on business in Garrett-lane, Wandsworth, appeared to answer four summonses, at the instance of Colonel Ford, one of H.M. Inspectors of Explosives, for neglecting to observe the terms of his licence by exposing a quantity of firework composition in an uncovered tray, for failing to remove with all due diligence nine cases of fireworks from a packing-house to the factory magazine, for not sweeping the interior of a building used for the charging and filling of fireworks, and for packing twelve cases of manufactured fireworks in the open air. The magistrate imposed a fine of £50, with five guineas costs.

The Preservation of Commons has always been regarded as a most important matter in respect of public health. Lord Salisbury would seem to think otherwise, for recently, speaking in Grand Committee of the House of Lords on Lord Thring's Bill for the Preservation of Commons, he attacked the measure as one "for the spoliation of the lords of the manor," and expressed the following curious opinion: "As to the cry about the preservation of commons, he believed that, except in the neighbourhood of large towns, it had a large element of bunkum. To nobody in the rural districts, except to persons who rode on horseback, was it important that commons should be preserved." In other words, pedestrians and such small fry are beneath the consideration of the class which has robbed many parts of England of common land to the extent of thousands of acres.

Physical Exercise in Schools.—In the House of Lords replying to a question put by the Earl of Meath, the Earl of Kimberley said that the Education Department fully recognised the importance of the teaching of physical exercises, particularly in schools situated in large towns; and in the next revision of the code this matter would receive special consideration.

The Smoke Nuisance.—Under the provisions of the Public Health (London) Act, 1891, all furnaces used in trade or manufacture must be so constructed as to consume their own smoke, and thus prevent the discharge of black smoke from their chimneys. The London County Council is empowered to act in default of the sanitary authorities failing to do so. A total of 1037 breaches of the Act have been brought under the notice of these authorities (vestries and district boards) by the Council's inspectors. In part of these the authorities have caused notices to be served on the offending persons, and in others legal proceedings have been taken, so that it has not been necessary for the Council to take action in default.

* * *

The Law Impotent to Remove a Nuisance.—At the Guildhall County Court last Friday, Messrs. John Knight and Sons, of West Smithfield, were summoned by the Commissioners of Sewers for creating a public nuisance by storing on their premises large quantities of fat, kept there till its removal to their soap factory at Silvertown. After considerable evidence had been given as to the intolerable character of the nuisance, Alderman Green said that he would suspend his judgment for two months (two of the hottest in the year, by the bye), to see what was done in the meantime to mitigate the evil. He had no power to stop the business, much as he regretted the existence of such a nuisance in the City of London.

ANSWERS TO CORRESPONDENTS.

Messrs. Jarrold and Sons (Norwich) are thanked for their letter.

W. G. H.—You will find an article on Holloway's Pills and Ointment in *HYGIENE* for June 23. As you wish to have a complete set of the articles on Patent Medicines, you should make sure of copies by dating your subscription for *HYGIENE* from May 13, which began Vol. VII.

Mr. John Turner (Liverpool).—Members of the police have been employed as sanitary inspectors, but only in a few localities in Norfolk, &c., shortly after the passing of the Public Health Amendment Act, 1872. At that period these officers were termed inspectors of nuisances. The appointment of police in this capacity arose probably out of some mistaken idea of economy; but it was soon stopped by a Departmental Order issued by Mr. Robert Lowe at the end of 1873.

A Lady Subscriber.—Do not waste your money or injure your child's health by buying such a quack remedy as the one you name. But, after all, you have the consolation—such as it is—that, like hundreds of thousands before you, you have been misled by the word "Patent" into believing the statements made concerning nostrums.

Dr. Sutton and B. W.—See second portion of answer to *W. G. H.*

M. O. H.—Yes; Mr. W. H. Michael, Q.C., was in early life in medical practice (South Wales). He subsequently entered the legal profession, and, after being called to the Bar, was recognised as a leading authority on all sanitary questions during many years' practice.

Mr. Reid (Dundee).—Send your complaint to the medical officer of health for your district.

W. M.—We think you must be mistaken, but we will make inquiries for you, and write fully to your private address, upon hearing from you again.

J. T.—We have received a manuscript report concerning the sanitary condition of a West Coast watering-place, but can do nothing in the matter without the complete signature and address of the writer, or verification by any medical gentleman resident in the locality.

A Sanitarian.—The next International Congress of Hygiene will be held at Budapest in 1894.

J. O'B. (Dublin).—You should have no difficulty in getting *HYGIENE* regularly from your newsagent. Our publishers would supply it, post free, for 6s. 6d., the subscription to commence from any date. See answer to *W. G. H.*

An Anxious Author.—We have shown your letter to our publishers. They would print and publish your pamphlet for a little over half of the cost you have been told the book would come to.

Invalid.—You have been rightly advised. Strathpeffer Spa would suit your ailment admirably.

Mr. Mitchell (Wigan).—Alkali Working and Bleaching Powder Making were dealt with in our columns some time back (June 9).

EDITORIAL AND PUBLISHING NOTICES.

EDITORIAL.—The Editor begs to express his thanks to numerous correspondents, and to state that he will be pleased to receive any articles or correspondence coming within the scope of *HYGIENE*, reports of medical officers of health, items of general or local sanitary interest, newspapers (marked at the part to which it is desired to draw attention), &c.

PUBLISHING.—The terms of subscription not having been raised, although under the new arrangement fifty-two numbers instead of twelve will be sent out annually, all subscriptions now running will continue good for the original period.

HYGIENE will be forwarded, post free, to all parts of the Kingdom, and to all countries within the Postal Union (including the United States, Canada, France, Germany, Belgium, Italy, Austria, Hungary, Spain, Portugal, Switzerland, the Netherlands, Russia, Denmark, Sweden, and Norway), on the following prepaid terms:—Twelve months, 6s. 6d.; six months, 3s. 6d. Subscription terms for Australia, India, the Cape, and all other parts of the world can be ascertained by inquiry at *HYGIENE* office.

ADVERTISERS are requested to bear in mind the greatly increased circulation of *HYGIENE*, with its weekly issue and reduced price. In addition to the large, regular circulation, many thousands of copies are distributed annually to sanitary officials, medical men, private addresses, public libraries, clubs, hotels, &c.

HYGIENE.

NEW (WEEKLY) SERIES.

Vol. VII. commenced with the Number for May 13th.

Chief Contents of May 13th Number :—

Public Health Reports.—Beauty: How to Preserve it.—Patent Medicines: No. 1. Mattei's Electro-Homœopathic Remedies.—Miss Buckland on Food.—British Health Resorts: No. 1. Swanage (*illustrated*).—The Anti-Adulteration Society.—Air and Light: A Doctor's Story.—Lead-Poisoning.—Dietetic Notices.—Hygienic Notes and News, &c., &c.

Amongst Contents of May 20th Number are :—

Hygiene in the Arrangement of Buildings.—Alcoholism in Relation to Public Health.—Cocoa and Chocolate (*illustrated*).—Public Health Reports: Kensington and Braintree.—Patent Medicines: No. 2. Clarke's Blood Mixture.—Hay Fever, Hay Asthma, or Summer Catarrh.—Reviews and Notices of Books.—Hygienic News and Notes.

Chief Contents of May 27th Number :—

Alcoholism in Relation to Public Health, by Professor Westergaard.—Public Health Reports: Lincoln, Leighton Buzzard, and Stourport.—Patent Medicines: No. 3. Clarke's Blood Mixture, Chlorodyne, and Opiates.—Hygiene in its Application to Buildings, by P. Gordon Smith, F.R.I.B.A.—Hay Fever, Hay Asthma, or Summer Catarrh.—A Yarn about a Boil.—Impediments of Speech.—The New Disinfectant, Izal.—Hygienic News and Notes.

Amongst the Contents for June 9th are :—

Gardens of Rest: The Cemeteries of the Future, by Rev. W. A. Willis.—Hygiene and the Arrangement of Buildings, by P. Gordon Smith, F.R.I.B.A.—Noxious Employments: Alkali Working, Bleaching Powder Making.—Hay Fever, Hay Asthma, or Summer Catarrh.—Public Health Reports: Ripley, Derbyshire.—Patent Medicines: No. 4. Revalenta Arabica.—Tobacco: Wellington and Napoleon.—Reviews and Notices of Books.—Hygienic News and Notes.

Chief Contents of June 16th Number :—

The Advantages of Public Abattoirs over Private Slaughter-Houses.—Patent Medicines: No. 5. The History of Patent Medicines; Sequah's Oil and "Prairie Flower" Mixture.—British Health Resorts: No. 2. Lowestoft (*with illustration*).—

Noxious Industries: Match Making, India-rubber Dressing, White Lead Works, etc.—The Power of Imagination Exemplified.—Notes and News.—Answers to Correspondents.

Contents of June 23rd Number :—

Shall we Lock up the Drink or the Drunkard?—Public Health Reports: Hanley, Staffordshire, and Kensington.—Patent Medicines: No. 6. Holloway's Pills and Ointment; the Sequah "Prairie Flower."—The Ventilation of Ships.—Reviews.—Hay Fever.—English *versus* Foreign Cocoa.—Anthrax, or Malignant Pustule.—The Hygienic Importance of Cleanliness; Public Baths.—Correspondence, News, Notes, &c.

Contents of June 30th Number :—

London Government, as It is and as It should be.—The Use of Steam in Weaving Factories.—An Age of Stimulants.—The Distinctions between Health and Disease.—Patent Medicines: No. 7. Correspondence concerning Holloway and Mattei.—Public Health Reports.—Hospital Accommodation in the Metropolis for Persons Suffering from Infectious Diseases.—The Manufacture of Mineral Waters.—Hay Fever.—News, Notes, Correspondence, &c

Chief Contents of July 7th Number :—

Cholera: Its Causation and Prevention. By Sir Spencer Wells, Bart., F.R.C.S.—Rural District Nurses. By Lady Victoria Lambton.—British Health Resorts: No. 3. Clacton-on-Sea and Walton-on-the-Naze.—London Government, as It is, and as It should be.—Notable Industries: No. 1. Bread and Bread Making.—Patent Medicines, No. 8.—Reviews: The Brighton Life Table.—Fashionable Follies.—News and Notes.—Answers to Correspondents, &c.

Chief Contents of July 14th Number :—

Public Health Reports: Kensington.—Hay Fever, Hay Asthma, or Summer-Catarrh.—Cholera: Its Causation and Prevention. By Sir Spencer Wells, Bart., F.R.C.S.—Patent Medicines, No. 9.—Allen's World's Hair Restorer; the Mexican Hair Restorer; Rowland's Kalydor; Gowland's Lotion for the Skin; Ruppert's Skin Tonic; Singleton's Golden Ointment; Mattei's Electricities. By the Editor.—The Manufacture of Mineral Waters. By T. P. Bruce Warren.—Church Bells, a Nuisance in Large Towns.—News and Notes.—Answers to Correspondents, &c.

"HYGIENE,"

A SANITARY AND SOCIAL JOURNAL.

ESTABLISHED IN 1887. PRICE—ONE PENNY WEEKLY.

The following are some of the hundreds of Favourable Notices which have been received:—

From the Right Hon. W. E. GLADSTONE, M.P.

Facsimile.

*Sir, I beg to thank you for your
courtesy and note. A
glance at the volume shows
me that it must contain
much matter worthy of
attention. You very ob.
t. faithfully
W. E. Gladstone*

"The editor of HYGIENE has for some time past devoted himself to the task of exposing medical quackery. We hope that all our readers will make it their business to acquaint themselves with its contents."—*British Medical Journal*.

"Every medical man should make himself acquainted with the articles on patent medicines in HYGIENE, and make them generally known also amongst his patients."—*Provincial Medical Journal*.

"The editor of HYGIENE has issued a series of articles exposing the pretensions of popular patent remedies. . . . He has furnished thinking people with weighty reasons."—*Saturday Review*.

"HYGIENE is a sanitary and social periodical devoted to the consideration of matters affecting the health of the people. The number before us contains interesting papers of great value."—*The Metropolitan*.

"HYGIENE contains useful articles, papers, and lectures on matters which it is to the interest of everyone to know."—*Reading Mercury*.

"This is an excellent journal, affording much useful information concerning foods, beverages, health resorts, domestic medicine and sanitation, and kindred matters. The increased interest now taken in sanitary and social science has created a demand for a journal of this kind, and HYGIENE cannot fail to do much good."—*Southampton Times*.

"HYGIENE is a sanitary and social journal of considerable practical merit, and treats of a variety of important matters affecting the health and home."—*Lincolnshire Free Press*.

"This periodical is devoted to inquiry into all matters of sanitary and social importance, affecting the health of the individual and the community at large. The articles are excellent."—*Ashton-under-Lyne Reporter*.

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"HYGIENE in the present number gives, in the first place, a biography of Sir Edwin Chadwick, described as the father of sanitary science. Valuable precautions against epidemic disease are also given; and there are various other articles of an instructive and interesting character."—*Rosendale Gazette*.

HYGIENE,

A SANITARY AND WEEKLY PAPER

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WATER FOR TOWNS.

CONSTANT SUPPLY *VERSUS* INTER-MITTENT.

WE need not enter upon any lengthy disquisition on the part which Water plays throughout Nature. One of the four elements recognised at an early period by ancient writers, it enters into the composition of most terrestrial substances, whether organic or inorganic ; while forming, as it does, according to the researches of Chevreuil, about two-thirds of the entire weight of the human body, it is absolutely necessary for carrying on the chemico-vital operations of the living system.

What we have to deal with here is water—"honest water," as Shakespeare wrote—regarded in its sanitary relations. Its value, in this respect, is so universally admitted that we need not dwell upon it. The question before us resolves itself, therefore, into the simple inquiry—How should water be supplied to the inhabitants of towns, who, owing to local circumstances, must derive their supply from a more or less distant source, through service pipes? The answer which would be given by everyone who has devoted attention to this subject is, that the supply should be *constant* ; and that it is not invariably so is attributable, in part, to the ignorance, apathy, or powerlessness of the consumers, and, in part, to the sordid, selfish policy shown by water companies generally.

The Reports of the House of Commons' Committees upon Water Supply, and of the Royal Sanitary Com-

mission, have demonstrated, in language more forcible than is commonly to be found in such documents, that in many parts of London, especially in the poorest and most densely inhabited districts, the quantity and quality of the water supplied were far from being what they ought to be ; and it not unfrequently happens during the summer months, when there is greatest danger of some epidemic breaking out, that many thousands of persons are kept for weeks in a disgracefully deficient condition, almost amounting to a water famine.

The quantity of water supplied for each individual in a community necessarily varies according to locality and other circumstances. In villages the estimated daily quantity is about 10 gallons per head for all purposes ; while in towns possessing a good supply, the average reaches as much as 35 to 40 gallons. Returns issued by the Board of Trade show that the water supply of the various towns named in the reports ranged from as low as 12 and 14 gallons per head of the population daily, in Norwich, Derby, and Manchester, to 50 gallons in Glasgow. This city can boast, not only of a larger supply of water, but of a purer (derived from Loch Katrine) than any other populous place in the kingdom. If we cross the Atlantic, however, we find that our American cousins beat even Glasgow in respect of quantity, the daily supply to New York from the Croton (between 40 and 50 miles away) being estimated at 70 to 90 gallons for each inhabitant of the districts provided with Croton water. The daily quantity per head in Paris is 30 gallons ; London varies from 35 gallons upwards,

Compared with the average of village water-supply, these figures for towns may, at first sight, appear high ; but we fear that to a certain extent they are placed in excess of the actual amount. The reader must also take into consideration the circumstance that large quantities of water are used in towns for manufacturing purposes, which would make the average per head seem much higher than what is really used for domestic purposes ; while a much larger quantity of water is necessary in all places where the system of water carriage is resorted to for the removal of sewage-matter than where such a plan is not employed. The sewers rarely contain more than a few inches of water, and the supply of water, particularly in the poor neighbourhoods, is too often inadequate to the efficient flushing and cleansing of the drains, which consequently become loaded with refuse matter in every stage of decomposition. Hence it will be seen that no comparison can fairly be instituted between localities which possess no general system of drainage, and where, as a consequence, there is a difficulty in the disposal of surplus water, and towns provided with proper sewers and drains, where any so-called waste water passing into these outlets would, of course, serve a useful function in cleansing them.

Here we come to one of the principal objections urged, from an economical point of view, against the system of constant water supply, namely, that with such an arrangement much water would be wasted, either through neglect or through imperfect fittings. So long as it is left in the hands of commercial companies to provide and make large profits out of one of the greatest necessities of life, such arguments—based upon false notions of economy—will be brought forward, and will receive the support and approval of a certain section, which regards *£ s. d.* as of more importance than the welfare of the community. It was not so in ancient Rome, whose aqueducts, constructed and maintained at the public expense, still remain to astonish us with their grand proportions. Of late, much has been said and written concerning the desirability of the Government's purchasing the rights of the existing gas companies, so as to make the supply of gas a public instead of a private matter, as has been done with advantage in the case of the Post Office Telegraphs. If such measures are advisable with respect to gas—and their advocates show excellent reasons in favour of their views—by how much the more is it necessary that the supply of water should be made a public trust and duty ?

But as such a consummation, though “devoutly to be wished for,” does not appear to be very close at hand, despite official inquiries and House of Commons Com-

mittees, we must be content to deal with the matter as it stands. One great argument used by the defenders of the system of intermittent water supply is, as has already been stated, that under the constant supply system there would be greater liability to waste, through carelessness on the part of the consumers, or through inefficiency of the fittings employed. Facts, however, do not support this assertion ; indeed, they go to prove the contrary. We know one large town where the constant supply system has been in full operation for years, and the average quantity used is not much more than one-third, as compared with what was formerly wasted under the intermittent system ; and a high authority on the subject, Mr. Michael, in the “Manual of Public Health,” urges that a constant high pressure would necessitate a supervision over fittings now greatly wanted, while its omission leads to much leakage and loss of water.

By the use of suitable apparatus, and the introduction of the constant supply system, we should be able to do away altogether with storage cisterns, which are now requisite under the intermittent system. Very few persons, comparatively, whose attention has not been specially directed to this point, have any idea of the abominable extent to which house cisterns become fouled by the deposit of dust, dirt, &c. The Royal Sanitary Commission, reporting on this point, observed :—“In houses of the rich the cisterns are frequently more or less unsatisfactory, perhaps not free from effluvia caused by drainage pipes, whilst in the more confined and less cared for houses of the lower and working classes they are often receptacles of putrid matter.” Some few years previously, a Special Committee of the House of Commons, appointed to enquire into the water supply of the East End of London, reported that “The cisterns used for the purpose of storing water for household consumption are probably a more fertile source of impurity than any pollution of the river whence the water is drawn. Decaying animal or vegetable substances, or other impure matters, may easily find their way into a cistern, and are more likely to engender disease than any impurity existing in the water before it flows into the cistern.” Of course, if we extend the inquiry further into the evil effects of the intermittent water supply, where no cisterns exist, and poor people are obliged, through the want of adequate storage, to keep water in pails or tubs in their living-rooms, the case becomes still worse ; and the more we regard the bad results of storing water in house cisterns or other receptacles, arising out of the intermittent supply system, the more evident is the wisdom of the conclusion at which the Royal Sanitary Commission arrived :—“We think that Parlia-

ment should as much as possible insist on the constant service which the general statutes have enjoined."

Before we leave this point, we may remark that the amount of waste through the overflow pipes of cisterns is very great; so that, if only on economical grounds, it would probably be to the advantage of all water companies to do away with storage cisterns, and to adopt the high-pressure, constant system.

Besides the certainty of the water becoming deteriorated by being kept in cisterns, there is another danger to health arising from the occasional use of the intermittent system, when the water is delivered by services designed for the constant system. This was first pointed out by Dr. Alfred Carpenter in an article published some years ago. That gentleman showed that there is always risk of sewage contamination where the supply is less than the demand, in this manner. If the pipes pass along through subsoil contaminated with sewage, and the pipes are, as is often the case, corroded and leaky when they become partly empty, the pressure from without inwards causes some of the sewage to be drawn into the defective mains, and thus to become admixed with the pure water supplied from the works. In the same article Dr. Carpenter states, as we have already observed, that the consumption of water in towns varies more in accordance with the quality of the fittings employed than with the quantity of water required. For instance, at Croydon, it was found that the water supply amounted to 56 gallons per head daily. At Dr. Carpenter's suggestion, the Local Board of Health instituted an inquiry through their engineer, Mr Baldwin Latham, and it was proved, by actual experiment, that in those districts where the requirements were for household purposes only (there being no trade requirements) $7\frac{1}{2}$ gallons for each individual per diem were sufficient, so that all supplied above that quantity might be regarded as waste.

In addition to the various points which have been discussed in this article, there is another of no small public importance, bearing upon the question of the superiority of the constant over the intermittent system; we refer to the use of water in case of fire. Under the intermittent system, much valuable time is frequently lost in obtaining a sufficient quantity of water for working the engines, as the water, when turned on at the main, goes to fill the various house cisterns in the neighbourhood, and until these are full a thorough supply cannot be had for the engines. On the other hand, under the constant, high-pressure system, the mains being always charged and the pressure full on, an efficient quantity can at once be procured from the stand

pipes. A striking proof of the advantages of a ready and adequate supply of water, in this respect, occurred in New York, where, after the introduction of the Croton water into the city, it was found that the facilities for extinguishing fires were so greatly increased that the insurance companies lowered their rates of premium.

THE EFFECT OF REDUCED WORKING HOURS IN FACTORIES.

By HOLT S. HALLETT, C.E.

It has been proved by actual, frequent, and sustained experiments in the United Kingdom, on the Continent in America, and elsewhere, that for both manual labour and labour at a machine there exists a reasonable limit of hours of labour, with which the maximum effective power of the worker generally corresponds, and that it is senseless, as well as cruel, to work a person beyond these ascertainable limits.

I will first deal with evidence given before the last Factory and Workshops Commission—that of 1875—held in this country, as to the Birmingham industries, which include nearly every process of manufacture outside the textile fabrics. Mr. Arthur Chamberlain, of the great firm of gas-fitters and brass-founders, in answer to the question, "Is there any trade in Birmingham that works more than 60 hours per week?" replied, "I think certainly not; I should think that no manufacturer in his senses would hope to get any advantage from working more than 60 hours." Sir Joshua Mason, in his letter to the President of the Commission, declared, "The hands under the Act work 50 hours per week (from 8 to 6). I have had the carrying out of the Act in these works since its application, and can testify that the hands earn as much money and that there is as much work done as under the old system of 59 hours."

Mr. Hopkins, wrought hollow-ware manufacturer and tinsmith-worker and japanner, in reply to the question, "Do the women work only from 8 to 5?" said, "Yes, only from 8 to 5, and I think they do as much work up to 5 as they used to do up to 6." Even more telling evidence was given against the system of overwork by Mr. John S. Manton, a button manufacturer, who stated that, after reducing the working time one hour a day, his workpeople earned nearly one-seventh more by piece work in the reduced hours. He told the Commissioners that he worked his hands only 48 hours and 10 minutes a week, summer and winter, and said: "We have no overwork. We have found by long experience that overwork does not pay. Increased hours cause

listlessness and loss of power, and, therefore, we have abandoned them." So much has this belief grown in the Birmingham district, even as early as 1875, that Mr. Johnston, the factory inspector for its southern portion, stated in his evidence that "The hours of work in summer are, not uncommonly, 8 to 6, with one hour for dinner from 1 to 2. This arrangement (9 hours' work a day) is growing in favour with employers, who find they can get as much work done as in longer hours with a saving of steam."

Turning to the textile factories, I find in the report of the Select Committee in 1816 that the celebrated Robert Owen was the first to give a stalwart blow to the devil's doctrine that "the longer you can work men, women, and children, the more you will get out of them." In his evidence he stated that, on reducing the hours in the New Lanark Cotton Mills from 11½ to 10¾ per diem, no reduction in the product of yarn ensued. He said, "I would recommend about 10 hours' actual employment, or, at the most, 10½ hours. My conviction is that no party would suffer in consequence of it, with reference either to the home or foreign trade."

Such an enlightened idea was long in making its way into the minds of manufacturers. A fresh stroke in the cause was given in 1844 by Mr. Robert Gardner, a cotton spinner at Preston, who, in that year, reduced the running hours of his mill from 12 to 11 a day, and at the end of twelve months reported that he got a better quality of work and more of it in 11 hours daily than he had previously done in the 12. Three years later, in 1847, the "Ten Hours Bill" was passed for textile factories, but it was not until 1867 that the majority of the industries in this country were brought under legal regulations. The cotton operatives were not long in finding that they turned out at least as much product in the 10 hours' daily labour as they had before done in the 12 hours; they therefore set to agitating for a nine hours' day, or 54 hours a week, in which they considered they could do as large an amount of piece-work as they did in 60 hours. The manufacturers, however, were fearful of the possible consequences, and the 56½ hours were agreed to in the Act which was passed in 1874 as a compromise between the manufacturers and the operatives. The operatives soon proved that they could do as much in the reduced hours as they formerly had done. In his evidence before the Gold and Silver Commission, Mr. J. C. Fielden, a Lancashire cotton manufacturer, allowed that in less than twelve months after the passing of the Act "there was not the smallest reduction of produce from that shortening even with the same machinery."

Turning to the Continent, we find similar proof that a man, whether working a machine or not, is limited by his bodily and mental faculties to a certain amount of profitable work in a day, and that it is senseless, as well as cruel, to work him for more than a certain definite number of hours. Only the other day an account of an experiment with reduced hours of labour by a large manufacturer in Belgium appeared in the *Chamber of Commerce Journal*. For three months, as a trial period, this manufacturer reduced his hours from 12 to 10½ a day, and found that this reduction made no appreciable effect upon the production of his factory. At hand-combing the workers did the same amount of work in 10½ hours as formerly in 12; and at machine-combing, which is very fatiguing work for lads, there was a slight increase in production. Many textile factories in Germany have reduced their running hours considerably, owing to strikes, and, according to Mr. Oscar Hall, in no case has there been a consequent decrease in production. The reduction of the running hours in textile factories in Austria in 1889 from 12 to 11 and 10 a day, both increased the quantity and improved the quality of the output. Even the reduction of the hours from 11 to 8 in the glassworks near Dusseldorf, in Germany, after a short time, caused not the slightest falling off in the production.

In February, 1890, in a speech at Chatham, Sir John Gorst pointed to the great waste of labour in employing men "for unreasonable and exhausting hours of labour." He said, "A man who works longer than health and strength allow is wasting his labour, because he is expending his energy and toil when that energy and toil cannot render a proper return. It is most remarkable how you find everywhere proofs that long hours of work, so far from increasing production, actually diminish it. I will give you the last two instances I have come across. In the district of Hesse-Nassau, in Germany, ten years ago, the glass factories used to work 14 hours a day; they now work 10 hours, and the production in these glass factories has positively increased by the reduction in the hours of labour. In the great linen factories of Plauen, in Saxony, the people work by piece-work. They used to work 12 hours a day, but some little time back the hours have been reduced to 10, and the workmen actually earn by their piece-work more than they did before."

Metropolitan Asylums Board.—The General Purposes Committee have recommended the Board to purchase 31½ acres in Kidbrooke, the property of the Earl of St. Germans, as a site for a new fever hospital, at the price of £550 per acre.

PUBLIC HEALTH REPORTS.

Paddington, St. Luke's, and St. Matthew's, Bethnal Green.—We have before us the quarterly reports of these three populous London parishes, one situated at the West End of the metropolis, the other two being East End parishes, containing in the aggregate several hundred thousands of inhabitants. Yet during the last quarter (up to June 24) the number of samples submitted for examination amounted only to 176, a small quantity when we take into consideration the large population whose health and pockets were in jeopardy through possible adulteration of the articles of food and drink supplied to them. But there is something more remarkable than this; out of the 176, 137 samples were supplied from Paddington, leaving 29 as the quota for St. Luke's parish, and only 10 from Bethnal Green. Verdant as the last-mentioned district is in name, we do not think that any of our readers at all acquainted with the ways and customs of London small tradesmen will, for one moment, imagine that 10 public analyses for an East End parish, containing about 130,000 people (the number of samples, 10, being, by the way, exactly the same as submitted in the previous quarter) could, in any reasonable degree, represent the needs of the district. If on such grounds a comparison be instituted between Bethnal Green and Paddington, having, roughly speaking, much the same population, then the West End tradesmen requires, say, twelve times as closely watching as his counterpart down East. "Polly Perkins," the Paddington fair one, whose name was as frequently uttered in the street ditty a few years ago as "Daisy" is at the present date, was represented as a pattern of purity in the well-worn song; we are afraid that the male Paddingtonians engaged in commercial pursuits, connected with eating and drinking, cannot be regarded as up to the same standard, if the deductions we have just made from the figures quoted are correct. It is far more likely that, for some reason not far to seek, Mr. Stokes, F.C.S., who is public analyst for the three districts referred to, did not receive a proper quantity of samples from Bethnal Green, or even from St. Luke's.

The samples submitted for examination in Paddington were as follows:—Milk, 94; butter, 19; coffee, 13; lard, 7; mustard, 2; and pepper and arrowroot, 1 of each. The total of samples proved to be adulterated was 22, or 1 in 6, viz.:—Milk, 19; butter, 2; and coffee, 1.

The milk adulterations consisted either in the addition of water to the extent of 6 to 24 per cent., or the removal of from 30 to 40 per cent. of the cream. Prosecutions

were instituted in 15 milk cases, with the satisfactory result that a conviction was obtained in 14 of them, and would doubtless have also resulted in the other case but for the accidental non-attendance of the prosecuting solicitor, in whose absence the magistrate dismissed the summons. This, too, was one of the worst cases, for it was not disputed by the offender that 40 per cent. of its cream had been abstracted from the milk. But, though the results were satisfactory, so far as obtaining convictions went, they were unsatisfactory as regards the fines, which were wholly inadequate, ranging from five shillings up to ten. Contrast such slender penalties with the £25, £50, or more imposed when the Excise authorities are the complainants instead of the sanitary authorities. Yet, there is apparently no valid reason why the toppers' interests should be regarded as of more importance than those of families, and especially of children; one occurs, however, and that is that beer, brandy, and gin are excisable articles, *i.e.*, pay taxes to the Revenue, while milk does not. Forty of the milk samples tested were procured at the railway stations in the parish of Paddington from supplies consigned by wholesale country dealers, and 9 out of these proved to be adulterated; so that it is not always the London dealer who is to blame for adulteration, except when, perhaps, he makes bad worse by turning the tap on, on his own account, to "make assurance doubly sure," as it were. Another point of interest may be mentioned, namely, that out of 24 samples of milk taken on Sundays, 10, equalling rather more than 2 out of every 5, were found to be adulterated. Thus, the experience in Paddington confirms what has been several times stated in *HYGIENE* before with respect to other localities. New reading of an old proverb—"When the inspector is away the pump-handle will play." Each of the two adulterated samples of butter contained 90 per cent. of margarine. If the trifling 10 per cent. of butter—in the sample presumably by accident—had been absent there would have been room for the solicitor for the defence to raise the plea that the sample could not have been dealt with as adulterated butter, as it was not butter at all. One roguish "Butterwick" was fined £2; the other got off with being ordered to pay costs only, as it was urged in his defence that an assistant sold the article by mistake while he (the principal) was ill in bed. Had the magistrate forgotten the trite legal dictum, "*Qui facit per alium, facit per se*"? But perhaps the solicitor for the defence was able to show that this innocent, though careless, assistant had quite a reputation for giving change for a half-crown when only a shilling was tendered by the customer. Who knows? The adulterated sample of

coffee was, one-fourth of it, chicory, and the magistrate came down on the offender with (for a magistrate) the tremendous penalty of 10s., a sum which must have taken the offender nearly an hour on the next Saturday night to make up by retailing more coffee *plus* chicory. Before closing the Paddington report, we must not omit to mention that the public analyst pays a high meed of praise to the inspector, Mr. T. Parker, for having been most indefatigable in procuring samples of milk from suspected sources, both on Sundays and weekdays.

St. George's, Southwark.—In this populous South London parish, having more than 60,000 inhabitants, only 79 samples were submitted in last year to Dr. Muter, the public analyst. Of these, 39 were samples of milk, no less than 13 of which were found to be adulterated by the addition of water, varying from 5 up to 60 per cent.; while in one case 60 per cent. of the natural proportion of cream had been abstracted. Of butter, 23 samples were examined, and 5 were found by Dr. Muter to be adulterated. The other articles examined were—bread 8 samples, whisky 2, pepper 2, rum, coffee, chocolate cream, and chocolate powder 1 each. These were all found to be genuine. Seeing that 16 out of a total of 79 articles proved to be adulterated, being, roughly speaking, 1 in 5, some idea can be formed of the amount of adulteration which goes on undetected and unexposed in a neighbourhood like St. George's, Southwark, where the majority of the residents are in poor circumstances, and consequently more at the mercy of dishonest tradesmen than people in better position, able to deal at any shop they might choose, would be. The general neglect to properly carry out the Sale of Food, &c. Act is fast becoming a disgrace to the authorities; and one of the most useful Acts that could be passed next Session would be an amendment Act, making clauses now permissive obligatory, increasing the penalties for adulteration (especially upon repetition of the offence), and providing for full publication of the particulars of the conviction.

BRITISH HEALTH RESORTS*.

NO. V. (NEW SERIES).—ILFRACOMBE.

ILFRACOMBE is at the extreme north-west point of Devon, and a better position for a watering-place could hardly be found. Looking almost due west, the vast mass of

Lundy Island is seen rising above the restless waters, and to the north, for forty miles, stretch the Southern Highlands of Wales, that exquisitely beautiful and romantic land, faithfully preserving among its most precious treasures its ancient and musical tongue; while its people are passionately devoted to what may be called a popular congregational form of religious service.

Upon the land of the ancient Cymri Ilfracombe looks, and from Swansea to Combe—the local name for the beautiful watering-place—the distance is hardly thirty miles. To the east stretch, for fifty miles, the gracefully wooded heights of the Bristol Channel, in places leafy and picturesque to the water's edge, in others bare and rugged. From Combe to Cardiff and Bristol, a distance of fifty miles or more, extends that magnificent waterway down which come thousands of stately ships and swiftly-moving steamers, and which is at times ploughed by cheap excursion boats from Bristol and Portishead. A pleasanter spot than Ilfracombe it would be hard to find, with an individuality distinctly its own, a something wholly unlike the south coast, and totally different to the Lancashire watering-places; in short, though no two towns are ever the exact counterpart of each other, and no two are strictly comparable, Ilfracombe may, in its way, as Bournemouth is in another, be said to be the solitary representative of its class.

Until recently Ilfracombe was hardly more than a fishing village, doing a large coasting and fishing trade, and its growth has been rapid, though not so fast as to destroy its quaint rural simplicity. Unfortunately, it is not easy of access, and one may say that, though only fifty miles from Taunton or Exeter, hardly more than half the difficulties of the journey are surmounted when the traveller alights at Taunton or at St. David's, Exeter. Even from Barnstaple, the North Devon junction for Ilfracombe, the approach is tedious, although picturesque; the train skirts the coast, and at times the passenger gets charming glimpses of the sea and of the steep sides of Lundy. Arrived at the terminus, boldly perched on a lofty artificial embankment, the descent into the town is short and rapid. A glance shows that the place is in a transition state; new houses are springing up everywhere—handsome shops and roomy villas with a sprinkling of hotels, but there are vestiges of the old life, and the fishermen lazily sauntering about, rather fine, good-looking folk as a rule, have the typical Devon features, accent, and bearing.

From being placed, as it were, on the sea, and from having the prolongation of rock known as Capstone Hill—jutting far out into the water, but excellently adapted to be a vantage point to look over the waters—no other

* The places already described in this new series are—No. 1, Swanage (with illustration), *HYGIENE*, May 13; No. 2, Lowestoft (with illustration), June 16; No. 3, Clacton-on-Sea and Walton-on-the-Naze, July 7; No. 4, Yarmouth (with illustration), August 4. Our view of Ilfracombe is taken from an excellent local guide, published at the *Ilfracombe Chronicle* office.

place known to me has more to offer in the matter of contrast between a bright, calm, sunny day, and one on which the wind and the clouds have it all their own way. The play of the light on the water is at times exquisite, while on a day when the clouds are rolling up like masses of oil, and one sharp squall succeeds another with startling rapidity, the effect is equally impressive. Nothing surpasses the beauty of a still, sunny day—nothing the majesty of a day of mingled squall and sunshine, and such contrasts occur at all seasons. A day of uniform heavy cloud is not favourable for seeing the Atlantic to perfection. Then the dinginess and gloom recall those of a cloudy day in a large inland town; but to get the effect of alternate sunlight and squall the day must be one on which both types of weather have the ascendancy for short periods, and follow each other in rapid succession. It is the poet's privilege to convey in a few words ideas which the prose writer needs pages to expand and work out, so I quote the charming lines of the late Mr. James Manson, the first part describing the ocean in calmness and peace, the second in equally appropriate language picturing it on one of those days of turmoil and confusion when to the imagination of northern races the spirits of the night and of the dead are rushing in fierce disorder and conflict over sea and land.

I.

“ Summer Ocean, Placid Ocean,
Soft and sweet thy lullaby,
Shadows lightly, sunbeams brightly,
Flicker o'er thee noiselessly.
Resting gently on thy bosom
Snowy sea gulls preen their wings,
While perfumed sighs from many a blossom
Float around the strain the skylark sings.
Love's emotion! Summer Ocean,
Like thyself 'neath cloudless skies,
Glances brightly, dances lightly,
Till the fond illusion flies.

II.

Winter Ocean, Furious Ocean,
Fierce and loud thy choral lay;
Storm clouds soaring,
Whirlwinds roaring,
O'er thy breast in madness play.
Homeless petrels shriek their omen
Harshly 'mid thy billows' roar.
Fleshless bones of shipwrecked seamen
Dash against thy rock-ribbed shore.
War's commotion! Winter Ocean,
Like thyself when tempest driven,
By passion hurl'd would wreck the world,
And mock the wrath-scowling Heave ”

Charles Kingsley, whose pride in his native county has almost passed into a proverb, gave Combe long years ago what he pleasantly called “the puff, honest and true.” He spoke of “its quiet nature and its quiet luxury, its

rich fairy land and its sea walks, its downs and combes, its kind people, and, if possible, its still kinder climate, which combines the soft warmth of South Devon with the bracing freshness of the Welsh mountains.” His brief lines sum up the chief features of the place, and are as true to-day as when first written.

Ilfracombe has only a population of 8,000, though, it is said, 200,000 visitors resort thither during the season. Lodgings and boarding-houses abound, and accommodation can be got at all prices, and, as a rule, living need not be dear. The sick and death rates are low; indeed, Ilfracombe is said to have an abnormally low death-rate. The visitor can pass weeks enjoying his new surroundings and exploring the neighbouring country, much of which, however, is greatly elevated, bleak and bare, presenting a marked contrast to certain valleys, the home of ferns and flowers in rich and bewildering profusion. One of the most impressive contrasts I have ever seen between verdure, richness and fertility, and bleakness, sterility and bareness, is between the deep, sheltered, leafy, fern-embellished road leading out of Nailsworth, in Gloucestershire, and the same road as it crosses the downs towards Minchinhampton and Cirencester; the commencement all loveliness, variety, warmth and shade, the next part all bleakness, monotony, and coldness. I cannot recall any contrast so decided in the neighbourhood of Ilfracombe.

The summer at Combe is cool and at times charming, and when bad weather comes, of which it has its full share, it is well to remember that in other parts of the kingdom matters are not better, while in winter there is much sunlight and less frost and fog than inland. In that calm, still, cloudy weather, not rare in winter in England, there is commonly at the sea shore sunshine, the higher temperature of the water dispersing the cloudy canopy, or not permitting it to form. The rainfall of North Devon is heavy, but relieved by long spells of dry summer weather.

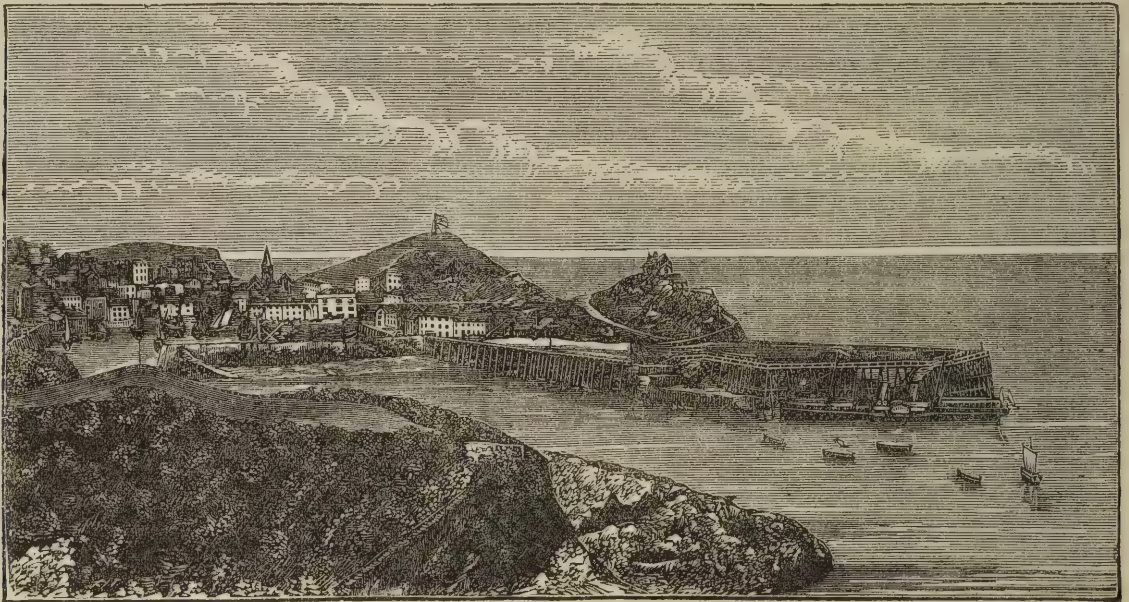
To the south-west of the town lie some dangerous and magnificent cliffs, on which shipwrecks have been common. The full force of the westerly and north-westerly gales, little felt in a sheltered town or inland valley, but a terror to the sailor on a lee shore, bursts on those cruel rocks, and woe to vessels embayed there. Morte Point is a name of ominous import to fisher-folk. An old proverb has it, “Morte is the place on earth which heaven made last and the devil will take first.” Kingsley's charming description is in his best style: “What a chaos of rock ridges—old, starved Mother Earth's bare worn rocks and joints peeping out through every field and down, and on three sides of us the sullen thunder of the

unseen surge. You see that black rock awash far out at sea. That is the *Morte* Stone, the Death Rock, as the Norman christened it of old, and it does not belie its name even now."

Many excursions can be undertaken if the visitor has a good command of money. One of the greatest charms of money is that foreign travel becomes possible, while as for seeing our own little island, how easy that is. It has never been my fortune to be master of an income in any degree sufficing for my frugal wants, and when I have seen the world I have had to compress long journeys in excursion trains, followed by many hours of rapid walking, into a space of time that to most self-indulgent, slow-moving Englishmen would be anything but delightful. Only thus have I contrived to explore a large part of our little island. I can assure the reader that a

—that priceless boon to travellers—enable 600 to 800 miles of railway travelling to be managed. It has been by dint of great frugality and energy that I have contrived to traverse Devon from end to end, and explore its lovely woods and hills and its sea-coast towns, and thus it was that, doing a little at one time and a little at another, I managed to get a good knowledge of the neighbourhood of Ilfracombe, seeing Barnstaple, Lynton, Lynmouth, Paracombe, and other pretty though little known places near.

Among the loveliest spots in England is Clovelly, with its well-nigh perpendicular streets; Bideford, with its ancient and noble bridge of twenty-four arches; Westward Ho, Swansea, Lynton, Lynmouth, the Valley of Rocks, Watersmeet, and Lundy Island are only a few that give diversity to the holiday. Lundy



little money in the long days, combined with a large expenditure of foot exercise, accomplishes wonders, and even a poor doctor can contrive not to be entirely cut off from those enjoyments which happier men command as a matter of course. I once managed to start from Ringwood, in Hants, and, before my tour ended in Birmingham, had been to Liverpool, New York, Philadelphia, and Richmond in Virginia, at a money cost to myself of £9 9s. 3d.; but I must confess that I worked my passage out and back from Liverpool to New York, while I did not spend a penny on horses and carriages during my whole absence from home; what I could not see on foot I did not see at all. If one wants to see the world there is nothing like walking. From twenty to forty miles can be easily covered in fourteen hours, and a couple of sovereigns will, with the help of tourist tickets

is so prominent a feature in the scene, and the visitor hears so much about it, that more than a passing word ought to be given to it.

The mildness of Ilfracombe makes it an excellent place for sufferers from bronchitis and other chest complaints, and though the winter-day temperature is not materially higher than that of many other places in the southern half of the island, the rarity of severe and long-continued night frosts, the prevalence of bright sunshine, and the soft, damp air are soothing, and ward off disease. Something must be allowed for the more active habits generally formed in a new place of residence. Invalids, if they face the expense and trouble of leaving home, are willing to bestir themselves, and get some good from the change; moreover, there is a zest in outdoor exercise not experienced in one's ordinary residence.

At any rate, visitors go out day after day for hours, and sit out on the rocks and benches as they would not do at home, and not only with perfect impunity, but they get the benefit of fresh and unpolluted air, and are kept from breathing, day after day, the close, hot atmosphere of small, stuffy rooms. This is the correct explanation of the good which many people get from staying at the seaside; that benefit would not always continue to be marked, for, after a time, the new residence would lose its freshness and interest, but for a brief season everything seems peculiarly beautiful and charming. So it comes about that Ilfracombe has attractions, in a quiet way, not equalled by many other health resorts in England.

The greatest drawback is the wind, which rushes down upon the town with a fury that makes outdoor exercise often peculiarly disagreeable, at least to me, and I vastly prefer calm cold of much greater intensity; still many visitors for a time find the fresh breezes, gales we must not call them, invigorating and delightful.

No description of the town would do justice to it that did not dwell upon some of the salient features of the neighbourhood, and of the part it has played in literature.

Who has not read that quaint, scholarly book, "Lorna Doone," the finest work from the untiring hand of its gifted author, Richard Doddridge Blackmore? The scene of that story is placed by its author, who once lived near Barnstaple, in a deep romantic glen on the borders of Exmoor Forest; Glen Doone is within a day's excursion of Ilfracombe. In spite of the constant changes going on in England, the migration of families, and the uptearing of the family tree, one is also greatly struck by the frequency with which the continuity of English life comes down to our day, almost without a break, from remote times. Every reader of "Lorna Doone" has been amused by Farmer Snow and his family, and has laughed at the not unfriendly rivalry among the yeomen of a couple of centuries ago. The Snows still live in the neighbourhood, and are still respected and opulent, though emphatically denying that they belong to the yeomen class. Some years ago, for several days, I saw a good deal of some of them, and was amused by listening to the familiar and pleasant accent, and still more characteristic provincialisms, that proclaim the Devon man the whole world over.

The north coast of Devon and Somerset is unfortunately difficult of access, except at its extremities. The North Devon Railway passes a good many miles

inland on its way from Taunton to Barnstaple, but there are convenient stations, and a few long mid-summer days are alone needed to penetrate through the forest tract to the Channel, seeing all one can wish of Oare, Bagworthy, and Glen Doone. The stranger must not expect timber, but a forest in the more exact sense of a vast tract of uncultivated wild country, unenclosed and practically useless except for the chase. There are, nevertheless, on the outskirts of Exmoor—which is in Somerset, by the way—some charming spots. Is anything more picturesque than Dunkery Beacon, and, further off still, the velvety turf and wooded slopes of the valleys between Tiverton and Bampton? And near Dulverton and around Dunster the country has an English beauty all its own. To do much, however, a noble disregard of fatigue and long distances must be cultivated, and then few more attractive centres for a long summer holiday can be found than Ilfracombe, the most delightful of North Devon watering-places.

ALFRED J. H. CRESPI.

SANITATION AFLOAT.

By R. W. COPPINGER, M.D., Fleet Surgeon, R.N.
THE chief difficulty in regard to the provision of suitable accommodation for the crew of a man-of-war consists in the fact that while the vessel must be constructed of manageable dimensions for manœuvring purposes, and is therefore restricted in length, the number of the crew is based upon what is required for the efficient working of the engines, guns, and torpedoes.

In other words, the housing of the crew is apt to be regarded as of secondary importance in the designing of a ship of war, as compared with the provision of space for carrying the greatest possible quantity of mechanical fighting material. That this must, to a certain extent, ever be the case, is a fact that has to be accepted by sanitarians; for the primary object of a man-of-war, in fact the object of its existence, is to act as a fighting machine; and the country requires, and the rivalry of other great Powers requires, that all other functions be to some extent subordinated to this.

The very limited accommodation available for our crews, with its attendant conveniences, is not, however, of so much consequence as might at first sight appear to be the case, because future naval actions are likely to differ very materially from those of the past in respect to duration. The terribly destructive action of the three great engines of modern naval warfare,

viz., the heavy gun, the ram, and the torpedo, will probably limit the duration of an engagement to a very brief period. Again, owing to the very extensive use of steam propulsion, and the facilities for obtaining information of a vessel's movements afforded by the telegraph wire, vessels will not nowadays require to keep the sea so long as in former times. Hence it is that the evils entailed by a long-continued subjection to insufficient air space on board ship will not (as formerly) come into force so as, by lowering the physical efficiency of our men, to influence materially the issue of a naval action at sea.

The question of air-space and ventilation as applied to men-of-war has always been a difficult problem, and the progress of modern naval architecture, necessitated by altered conditions of warfare, tends in many ways to make its solution more difficult of attainment. Among these conditions may be mentioned (1) the very great amount of air-space occupied by machinery and stores connected with torpedo work, and (2) the introduction of watertight bulkheads. These latter partitions are a great source of difficulty in respect to obtaining a complete circulation of air throughout a ship.

It is of little use to draw comparison between house ventilation and ship ventilation in regard to the steps to be taken for successfully coping with the latter, because the conditions are widely dissimilar. The contrast must be obvious when one calls to mind the ever-varying position of a ship with regard to sunshine and wind, the deflection of air currents caused by the trim of the sails and the consequent interference with uptakes and downtakes, and the number of apertures in the shape of hatchways, ports, and scuttles which have to subserve other purposes besides those of ventilation; all of these rendering somewhat abortive those systems of ventilation (applicable to houses) which depend upon the action of natural forces. The introduction of the turret and barbette system of construction into our modern battleships, with the consequent reduction and almost complete abolition of apertures for natural ventilation by means of ports and hatchways, has rendered necessary a very general use of artificial ventilation by means of rotary fans, to supplement artificial ventilation by means of funnel and funnel casing.

Since rotary fans driven by steam were first supplied to our ships, opinions have differed as to whether these ventilating appliances should be fitted so as to drive in fresh air or to exhaust the vitiated air. Most of our new battleships are fitted with "supply" fans only,

but in two vessels of recent construction there are fans both for supply and for exhaust; so that in these two vessels provision is made for a complete artificial circulation of air throughout the ship. In a ship which was quite recently launched, "supply" fans only are fitted; so that the impression appears to be gaining ground that where one system only is to be adopted, that by "supply" is preferable.

For my own part, I am inclined to adopt the view (which I will, I fear, be considered heretical by most sanitarians) that on board modern war vessels the "supply" system of ventilation is preferable to that by "exhaust." If the interior of a vessel were an enclosed space without subdivision into many separate chambers, and if there were but two apertures communicating with this space, then, no doubt, the application of an air exhaust to one aperture would, if maintained long enough, change the air of the entire space by the admission of fresh air through the other opening. But such a style of construction is practically not attainable. Exhaust fans, as at present fitted, are apt by a process of what I may call "short-circuiting" to draw in fresh air largely through the hatchway or ventilating aperture nearest to the first opening in the main trunk of the fan, and as regards distant portions of the ship, to perform the function of merely shifting foul air from one compartment to another. There is, moreover, a possibility of "exhaust" fans antagonising rather than assisting the action of the "supply" fans.

The distribution of air from a "supply" trunk to various parts of a ship is in another respect attended with considerable difficulty, viz., in regard to regulating the flow of air through lateral perforations or grating apertures. This is owing to the fact that in the air trunk from a centrifugal "supply" fan, although the velocity be considerable, the pressure is very low. Hence it is that the current of air in passing by one of these openings tends to set up an aspiratory action on the vitiated air outside, rather than to deliver fresh air. The action I here refer to is similar to what takes place when the wind blowing horizontally over a chimney exerts an aspiratory influence on the air inside the chimney, and thus draws up air from a cold firegrate. To meet this difficulty I would suggest that all the branches from the "supply" air-trunk should be made to enter the trunk for a short distance with the ends inclined towards the air-current; or else guides should be fitted so as to answer the same purpose by diverting the required stream of air.

Of all the methods of artificial "exhaust" ventilation applicable to ships, I am inclined to think that

that by means of the funnel and funnel casing is the most satisfactory.

The steam-jet exhaust (Edmonds') is at present used only in troop-ships, and is considered objectionable on account of the noise, the collection of water arising from condensation in the ventilator, and the waste of steam.

A method of extracting the foul air by means of the induced draught set up in a ventilating shaft by the emission of compressed air at low tension discharged from a ring-jet is now in contemplation.

The warming of men-of-war (more especially ironclads) in cold weather is a very important matter not hitherto sufficiently provided for. The usual method at present is by means of bogey fires, a method which is not only troublesome and dirty, but is also dangerous, both in regard to the risk of the decks catching fire and the products of combustion causing asphyxia from insufficient outlets for smoke being provided. A better plan would be to have a system of steam pipes disposed throughout the berthing deck, and arranged so as to take steam from the main boiler, furnished, if necessary, with reducing valves so as to maintain a low and uniform pressure.

A greater difficulty is to provide a means of cooling the air between decks in tropical regions, more especially when the ship is at sea and under steam. It has been suggested that this might be effected by using compressed air, both as a source of motion for ventilating purposes, and also as a means of abstracting heat when undergoing expansion while doing work.

In order to facilitate the application of artificial ventilation to the sleeping places on board ship, I would urge that in the construction of our battle-ships a single space (uncomplicated by bulkheads) should be set apart for the accommodation of the crew. At present the crew, at all events as regards their sleeping billets, are scattered over various parts of the ship. Such a scheme would render it possible to lessen the number of branches and apertures to ventilating shafts, and therefore to concentrate and regulate with more precision the application of ventilating apparatus to that portion of the ship where it is mainly needed. Moreover, if the crew were thus grouped together the task of providing for the maintenance of a suitable temperature would be less difficult.

In turret and barbette ships such a space might perhaps be provided by giving greater capacity for accommodation of the crew in that portion of the ship on side the breastwork; while in other classes of

vessels the best position for the accommodation of the crew is under a roomy forecastle. In this latter situation there is little difficulty in obtaining efficient natural ventilation. Such accommodation (*viz.*, in forecastle) is to be found in troopships, and to some extent in war vessels of a certain class.

HAY FEVER: NOTE ON TREATMENT.

BY THE EDITOR.

HAVING received many inquiries in reference to the employment of cocaine in the treatment of hay fever, as described in the concluding article on this affection (HYGIENE, August 4), I take an early opportunity to answer these inquiries.

The class of cases in which I have found cocaine most beneficial are those in which there is extreme irritability and sensitiveness of the mucous membrane of the upper part of the throat or lining the nasal passages. In the former instance there is huskiness and other impairment (sometimes amounting to absolute loss) of the voice, with frequent, short cough. In the latter instance the undue irritability is manifested by a copious discharge of acrid mucus, which, again, inflames and irritates adjacent surfaces with which it comes in contact.

In all such cases I have found great, often virtually instant, relief following the application of a few drops of a weak solution of cocaine—2 to 4 grains of the hydrochlorate of cocaine dissolved in water, or, better still, *pure* glycerine—to the irritable mucous membrane by means of a fine camel's-hair brush. But of late years, in the case of nasal irritation, I have preferred the tabloids of cocaine, each containing one-sixth of a grain of the hydrochlorate. One of these, when required, can be slightly moistened and introduced into each nostril. Being wetted, they readily adhere to the mucous membrane, and also as readily dissolve. Wherever the symptoms described in the first and third group (HYGIENE, May 20) are present, immediate relief can be assured by a judicious resort to this method of medication, simple yet efficacious.

It must be borne in mind, however, that hay fever is as Protean in its character as it is varied in its manifestations and complications, and, consequently, anyone who imagines that this mode of treatment, or, indeed, any other, will, if indiscriminately employed, result in benefit, will be certainly doomed to disappointment. In the asthmatic form of hay fever, for example, it would, for obvious reasons, fail in producing a satisfactory impression on the disorder.

OLD MEDICAL ANECDOTES.

A CLEVER STRATAGEM.—Jacques Coetier, a physician, was the only person who could keep in awe the irritable, superstitious Louis IX. of France. He governed him by playing upon that king's extraordinary dread of death, which was so marked that he once actually stopped a priest who, after having prayed for the health of his body, was beginning to implore Heaven for his future welfare. "Hold! hold!" cried the king, "you have gone far enough for this time. Never be tiresome in your addresses to the Almighty. Stop now, and pray for my soul another time." Coetier, thoroughly acquainted with this weakness on the part of the monarch, used to say to him when he fancied his influence was waning, "One of these days you will send *me* packing, I suppose, as I have seen you do with others about the Court; but," using a strong oath, "mark my words, if you do, you will not live eight days after it." By the occasional employment of this menace, Coetier not only retained his position, but the pusillanimous king was induced to appease him with great and valuable presents. On the other hand, he certainly paid much attention to the condition of the king's mind, which was often in a state bordering on lunacy. To amuse the king during his long illness, he contrived to have rural dances performed under his royal patient's window; and to make up for the king's inability to enjoy the excitement of the chase, Coetier caused cats and huge rats to be brought, so as to divert him by the exhibition of combats between these animals.

* *

PENALTIES ON MEDICAL PRACTITIONERS.—There was a time when physicians were bound to a strict attention to the welfare of their patients by something besides the consideration of their own credit and profit, for at Dijon, in 1386, a physician was fined by the chief magistrate fifty golden franks (as well as being imprisoned for a time) for not having completed the cures of some persons whose recovery he had guaranteed. And the beautiful Austrigilda, consort of Gontran, King of Burgundy, was, in the sixth century permitted by her husband, in compliance with her dying request, to have her two physicians slain and buried at the same time as herself. St. Foix, who chronicled this fact, omitted to mention whether this cruel deed occurred by way of punishment for their ill-success or out of her attachment to them. It has been suggested that this arrangement had the advantage of relieving the king from any indebtedness

to those ill-used doctors, possibly a consideration which had some weight with the too indulgent royal husband, in inducing him to accede to his consort's singular request.

* *

ANCIENT ANTIDOTES TO INTemperance.—An ancient writer records this fact: "The German mothers, to make their sons fall into dislike for wine, do use, when they are little, to put owls' eggs into a cup of Rhenish, and sometimes a little living eel, which, wriggling in the wine while the child is drinking, so scares him that many come to abhor and have an antipathy to wine all their lives after." In other words, seeing the eels in early life was supposed to minimise the possibility of their getting into such bad habits as to "see snakes" (a frequent delusion in delirium from hard drinking) when they grew up to man's estate.

* *

AN ALARMING THREAT.—"Your unchristian violence against me," said a Huguenot who had been persecuted for preaching, "will cost hundreds of people their lives." This observation got him into trouble, and he was brought before a court of justice and charged with harbouring the most bloodthirsty designs against his fellow-subjects. "I am perfectly innocent," said he, "of all you lay to my account. My only meaning was that I purposed, as you would not let me act as a minister, to practise as a physician, for which I am wholly unfitted."

HYGIENIC NOTICES.

The Biltor Pipe.—Tobacco smoking first came under the knowledge of Europeans in 1492, when some of the sailors employed in the expedition of discovery under Columbus stated, on their return to the ship from a reconnaissance at St. Salvador, that they had seen some natives seated around a fire folding up dried leaves into the form of tubes, then lighting one end, putting the other into their mouths, and—to use the vernacular of these ancient mariners, so different to the crew of the *Pinafore*, in the play—"smoking like devils." Eighty years afterwards, the Dutch adopted as a novel practice the inhalation of tobacco-smoke through tubes made with the leaves of the palm tree. It was not long before pipes were invented, and the greater portion of tobacco now consumed is smoked in this fashion. But there is one objectionable point with regard to pipes, and that is the tendency to accumulate the oil at the lower part of the bowl and in the stem-tube, so that every now and then the smoker is inconvenienced, and his digestion and health are jeopardised by some of this residue finding its way into his mouth. The essential principle of tobacco, called Nicotine—after Nicot, the French Ambassador at Lisbon, who sent some specimens of tobacco

thence to Paris towards the end of the sixteenth century—is a powerful narcotic poison. Notwithstanding many expedients which have been tried with a view to protecting the smoker from this annoyance and source of injury to health, none can be said to have been successful. We have, therefore, much pleasure in directing attention to the “Biltor” pipe. Its special feature is a cartridge which fits into the pipe-stem, and, in that position, absorbs the essential oil, as well as filters the smoke. The cartridge is readily adjusted by unfixing the mouthpiece, next fitting in the new cartridge, and then putting the mouthpiece on again. Each cartridge can be used for two or three pipes, and then discarded for a fresh one. The condition in which the used one will be found is a sufficient proof of the value of the invention, and of the necessity that exists for some such apparatus. The manufacturers are able to sell the pipe, with a full stock of cartridges, at about the same price as ordinary briar or meerschaum pipes, so that the “Biltor” is within the reach of every smoker. Persons who have once given a trial to the “Biltor” are not likely to put it aside for any other, as it combines the advantages of health, cleanliness, comfort, simplicity, and economy. Being rather puzzled about the name, to which we found no clue in any dictionary, we made inquiry of the manufacturers, and learned that it came about in this way: Being desirous to register a distinctive name, they hit upon “Filtor” as suggestive of one of its uses. But the officials decided against this as too much like “Filter”; and eventually a compromise was effected by substituting another consonant, B, for the initial letter, thus making the word “Biltor.”

NEWS AND NOTES.

Practical Philanthropy.—An association has been formed, styled “The English Land Colonisation Society,” with the view of placing on the land some of the labourers who are earning a precarious subsistence—indeed, almost starving—in our large towns. Its objects are to assist the formation of farm settlements in suitable localities, and to work training farms in connection therewith for casual labourers of the unskilled or partially skilled classes, agricultural labourers out of employment, or persons who have small capital, but whom the deterioration of rural districts have rendered unable to maintain themselves as village traders or artisans. A Special Committee has been appointed to draw up a report upon such farm labour colonies and farm settlements as have been already tried. Mr. J. C. Kenworthy, M.A. (of the Mansfield House Settlement, Canning Town), is the honorary secretary, and all communications from those who are interested in the work should be addressed to him at the Society’s office, 41, Bedford-row, W.C.

Hastings.—Dr. A. Scarlyn Wilson, medical officer of health for this borough, reports that the number of deaths registered during the past quarter (ending June 30th) was 173, being 27 less than in the corresponding period of last year, and showing the lower annual death-rate of 12·85 per 1,000. The zymotic death-rate was also low. The population of Hastings is now about 60,000.

Electric Powers Protective Clauses.—The Joint Committee of the two Houses of Parliament appointed to consider whether grant of statutory powers to use electricity ought to be qualified by provisions as to return—earth circuits, leakage, induction, or similar matters, recommends in all Bills for the use of electricity with large currents for other than lighting proposes the insertion of a clause binding the promoters to employ either insulated returns or uninsulated metallic returns of low resistance. The clause is not to apply in the case of railways, tram-roads, or tramways in which the motive power is entirely self-contained. The promoters are to take reasonable precautions to prevent damage by fusion or electrolytic action to gas or water pipes, or other metallic pipes, structures, or substances.

Concerning the Commons’ Preservation Bill:—

It is a sin in man or woman
To steal a goose from off the common;
But he doth sin without excuse
Who steals the common from the goose.

Accidents from Explosions of Paraffin and Petroleum Lamps.—Sir Frederick Abel and Mr. Boverton Redwood have reported to the London County Council on this subject, and the Council have issued a set of suggestions in respect of the construction and management of these lamps with the view of diminishing the frequency of such accidents in future. As regards the construction of lamps, it is strongly advised that the reservoir should be made of metal instead of the fragile material—glass, china, &c.—very commonly used; and it is further pointed out that the wick should be enclosed in a tubing of thin sheet metal, open at the bottom part and reaching almost to the bottom of the oil reservoir. Another great desideratum is that every lamp should have a broad, heavy base, and be provided with an automatic extinguishing apparatus in case it should happen to be overturned, this being a most usual cause of accident. The wick should receive more attention than is generally the case. Finally, it is recommended, as has been done in these columns, that, when extinguishing the lamp, the wick should first be lowered until there is only a small flickering of flame, which can readily be put out by blowing sharply across the top of the chimney, not down it. Moral: Never blow down the chimney of a paraffin lamp, unless you wish the lamp to blow you up in return for your act of folly.

Bakehouses.—The startling statements which were made in the article on Bread and Bread Making, published in *HYGIENE* of July 7, have received ample confirmation in a recent report of Dr. Blyth. Out of 108 bakehouses examined, 102 were underground, and 18 of these were simply filthy. In one bakehouse cockroaches abounded everywhere—on the floor, on the walls, on the trade implements, and in the warm chamber where the dough was put to make it rise. The drains were very defective, leading to contamination with sewer gas.

ANSWERS TO CORRESPONDENTS.

M.D.—Our publishers could get the French and Italian books you name. They could also print and publish your book cheaply and quickly.

Querist asks, "Is it better to sleep in a nightcap than not to use one?" We are of opinion that, except there should be some special reason for the practice, it would be better not to adopt it; but many years ago a similar question was put to no less a personage than the famous Dr. Johnson, and this was his answer, probably intended sarcastically,—"No man knows, and perhaps no man ever will."

B. M. (Norwich).—Forward your MS. for our private perusal.

Worse than Ever.—We should have been surprised if you could have honestly described yourself otherwise after swallowing so much quack medicine. The highwaymen of olden times used to exclaim, "Your money or your life." The modern quack in his greed practically substitutes "and" for "or" in this brief but startling sentence.

Salus Populi.—Wherever overcrowding, and consequent sanitary evils, exist the death-rate is sure to be higher than it should be. The laws of Nature cannot be broken with impunity.

Adulteration.—As long ago as the reign of Henry III. a law was passed enacting the punishment of bakers or brewers who tampered with the quality or quantity of the articles in which they dealt, the dishonest baker being consigned to the pillory, the roguish brewer to the tumbrel (a cart used for the conveyance of criminals), in either of which positions they were at the mercy of the crowd of spectators, who commonly pelted them with dirt, &c. This was a severer punishment than the nominal fine of 10s. or so, with costs, inflicted by most of our magistrates.

D. H. (Belfast).—If there is any difficulty in getting *HYGIENE* regularly, you can subscribe through our publishers. Subscription 6s. 6d., entitling to regular weekly delivery, post free, for twelve months.

Professor E. Marchi (Rome).—A reply has been forwarded by post to avoid delay.

A Sufferer.—"Impediments of Speech, Stammering, Stuttering, &c.," is published by Beaumont and Co., Savoy House, Strand, London. Twelfth edition, 2s., post free for 26 stamps.

Lady Victoria Lambton.—We have sent by to-day's post.

Tyro.—The Public Health (London) Act came into force on January 1, 1892.

Sanitary Inspector.—1. You are mistaken. Moule's earth closet was the invention of a country clergyman. 2. The great sewage farms of Paris are situated at Gennevilliers.

Materfamilias.—If you are taking your children very soon to the seaside, select Clacton-on-Sea or Felixstowe.

M. O. H.—We shall be glad to receive the report.

Anti-Quack.—It was certainly not in *HYGIENE* that your friend saw the nostrum you mention. We rigidly exclude all quack advertisements; and as regards the preparation you refer to, we thoroughly exposed its pretensions and published an analysis of its contents some time back. Some other sanitary periodicals do, unfortunately, insert quack advertisements, possibly because they bring in money, or because their editors, not being medical men, do not understand the immense mischief to public health done by the quack fraternity.

L. D.—The blue gum tree is a species of eucalyptus growing in most parts of Australia.

S. W.—The watering-place named will be described in an early number of *HYGIENE*. We are glad that you, in common with thousands of others, like *HYGIENE* in its weekly issue and at reduced price.

P. B. G.—Sir Walter Foster, Parliamentary Secretary to the Local Government Board, is not only a physician, but has written many valuable sanitary papers.

Miss Roberts.—We should recommend you to get the book on Food by Professor Church. It is one of the South Kensington Science Handbooks series.

EDITORIAL AND PUBLISHING NOTICES.

EDITORIAL.—The Editor begs to express his thanks to numerous correspondents, and to state that he will be pleased to receive any articles or correspondence coming within the scope of *HYGIENE*, reports of medical officers of health, items of general or local sanitary interest, newspapers (marked at the part to which it is desired to draw attention), &c.

PUBLISHING.—The terms of subscription not having been raised, although under the new arrangement fifty-two numbers instead of twelve will be sent out annually, all subscriptions now running will continue good for the original period.

HYGIENE will be forwarded, post free, to all parts of the Kingdom, and to all countries within the Postal Union (including the United States, Canada, France, Germany, Belgium, Italy, Austria, Hungary, Spain, Portugal, Switzerland, the Netherlands, Russia, Denmark, Sweden, and Norway), on the following prepaid terms:—Twelve months, 6s. 6d.; six months, 3s. 6d. Subscription terms for Australia, India, the Cape, and all other parts of the world can be ascertained by inquiry at *HYGIENE* office.

ADVERTISERS are requested to bear in mind the greatly increased circulation of *HYGIENE*, with its weekly issue and reduced price. In addition to the large, regular circulation, many thousands of copies are distributed annually to sanitary officials, medical men, private addresses, public libraries, clubs, hotels, &c.

HYGIENE,

A SANITARY PAPER

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OUR "VILE BODIES."

By reason of the imperfect translation of a word in Scripture, we are wont to abuse our "vile bodies," as it pleases many to describe them. It may be thought highly spiritual by some to attempt the exaltation of our souls at the expense of our bodies; but then, this would seem to imply that, whilst God made the soul, the devil created the body of man. The natural tendency since the Fall, of both body and soul, has been to vileness, but the body is not of necessity viler than the soul.

In spite of St. Stylites and other saints of the dirty and carefully self-neglected order, it is quite certain that clean bodies conduce to clean souls. It has even been remarked by a very practical authority that the civilisation of a State may be measured by the amount of soap which it consumes.

The Jews have a sanitary code, alleged to be direct from God, including details of personal cleanliness, wholesome food, and the separation of the sick from the healthy. The Mohammedan gives much consideration to ablution, and to the preparation of food. But the Christian, with the idea of baptism, or washing, theoretically pervading every article of his faith, not unfrequently neglects his "vile body," as he calls it, almost despising any intelligent or practical knowledge of its functions, or of the desirability of washing or properly maintaining it.

The warm bath is considered by many in this country as a luxury, and not as a necessity. Until of late

years the warm bath was a matter of impossibility with the greater part of our population, and is to an enormous extent even now. Many of the millions who use soap and water do not know how to wash themselves, or when and why they are clean. Many of those to whom education and means give the opportunity of an acquaintance with the laws of health do not know anything of the structure or the requirements of their bodies. Any necessities which may arise must, consequently, be referred to a medical practitioner, whose office is, in the main, to cure disease after the ignorance or neglect of preventive precautions has injured the frame. Take, again, the case of our food. It is entrusted to servants who, through our own faulty teaching, rarely possess the information how to cook it economically, or sometimes even wholesomely. We utterly ignore that knowledge by which alone the structure of the body can be healthfully built up; and mistresses are too apt to regard servants, in the present day, as if they required no training, but would grow, like Topsy in "Uncle Tom's Cabin," ready-made.

We are beginning to teach our children physical science, but it is that which explains the constitution of the skies, or of the bowels of the earth. We explain to them mechanical construction and motion, and the conditions necessary for preserving these, but of the anatomy of the human frame, of the causes of our own movements, the conditions of air, food, and clothing, inseparable from healthy existence, we convey to them never a word.

A man who would embark in a profession or trade without some technical acquaintance with its requirements would be properly regarded as a fool. One who would attempt to steer a boat containing his children across the ocean without some knowledge of seamanship, or who would attempt to drive them by railway without some knowledge of engineering, would be called a murderer or a madman. Yet men marry and bring up families after this reckless fashion. They assume the responsibilities of providing for and directing human life, in total ignorance as to the fitness of their marital unions, or the functions of their own bodies, or those of their children, on whom they will too often visit the consequence of the father's sin—be it ignorance, or be it neglect—to many generations, in deteriorated organisation, or in premature death.

Prevention is better than cure; but it is more. It is a paramount duty. If the knowledge of the cure of disease is an absolute necessity, and forms a most responsible occupation for a very large body of men, surely the knowledge which lessens that necessity must be of the highest value. The prosperity of a nation depends greatly upon its bodily health.

Physiology is as essential a part of the teaching at our schools as is divinity. It is no more difficult to teach a child a catechism of physiology than it is to teach it one of religion. It is easier to teach a child by demonstration than by faith; and physiology is one of the demonstrable sciences.

By those who do not take into consideration how much of human life is wasted by preventable disease and death, it is sometimes said that, without any knowledge of physiology, families are reared in health and vigour. "Providence tempers the wind to the shorn lamb," and children may live who, according to the laws of nature, ought to have died. But the tempering is frequently death, which relieves the innocent from pain, and which inflicts a direct judgment, in the shape of pecuniary loss, on the shepherd who has neglected his charge. It is to be feared that proverbs of this kind are hugged comfortably to the heart as apologies for ignorance or neglect of duty; whilst the direct application of the judgment is too often lost sight of in a text for a homily on the inscrutability of the ways of Providence.

The time has gone by when it was thought that physical science was opposed to religion. The health of our bodies is a matter for consideration, similarly to the health of our souls. We must therefore teach the

laws relating to the former, not only in our schools, but in our homes and amongst our poor.

An increase of population augments the difficulties of preserving the national health; but an increase of population betokens prosperity; and prosperity implies an increased responsibility in our duty towards our fellow men.

M. P.

PUBLIC HEALTH REPORTS.

Southwark: St. George the Martyr.—Dr. F. J. Waldo necessarily found it somewhat difficult to prepare the annual report for 1892, owing to his not having entered office until about the mid-year; but he has completed the duty with a completeness that leaves nothing to be desired.

The area of this sanitary district is 284 acres, and the estimated inhabitants at the middle of 1892 being 59,818, it follows that the density of population is 210 persons to the acre, as against 57 per acre for the whole Metropolis. The district is situated at a mean elevation of 0.54 feet below the Trinity high-water mark of the river Thames, while the mean elevation for all London is 47.5 feet above the same mark.

Taking into consideration these two important factors with regard to the sickness and death rates, it is not surprising to find that the death-rate for the whole district was 25.2 per 1,000 in 1892, as compared with 20.3 for the whole of London during the corresponding period. As Dr. Waldo reminds us, it has been pointed out by Dr. Ogle and others that where people are crowded together certain injurious conditions are produced, which directly affect the mortality. The air, the soil, and often the water are liable to be fouled, and infectious diseases, having a shorter average distance to travel from individual to individual, are more readily spread.

We notice one satisfactory deduction to be drawn from the tables of returns given in Dr. Waldo's report, namely, that though the annual death-rate of St. George's, Southwark, averaged about 30 per 1,000 in the decade 1841-50, it has gradually dropped in subsequent years down to the figure at which it now stands, the reduction of 4.8 per 1,000 closely corresponding with that of 4.7 in all London; the mean death-rate of the metropolis in 1841-50 being 25 per 1,000, and having in 1882 dropped to 20.3 per 1,000.

The zymotic death-rate in Southwark for 1892 was 3.6 per 1,000, as against 2.8 in London generally, and 2.6 in the 33 great towns of England and Wales. This

rate was exceeded in only 5 out of the 41 sanitary districts of the metropolis, viz., in the Strand 3·8 per 1,000, in Newington 3·9, in Bethnal Green, and in Limehouse 4·2, and in St. George's-in-the-East 4·9. The chief mortality in the zymotic class was from measles 66 deaths, whooping cough 46, diarrhoea 53. Referring to the excessive fatality from measles, Dr. Waldo expresses himself strongly in favour of making measles a notifiable disease. The deaths from scarlet fever in Southwark during 1892 were comparatively low, 15, having regard to the fact that scarlet fever was more prevalent in London in that twelve months than in any previous corresponding period; but, fortunately, though very prevalent, the disease was of a mild type, thus showing a low case of mortality.

The death-rate from pulmonary consumption and other tubercular diseases in 1892 was 3·6 per 1,000 in St. George, Southwark, as compared with a rate of 2·6 per 1,000 for all London, and the death-rate from respiratory diseases was also higher than for the rest of the Metropolis, affording further evidence, if evidence were needed, of the evils resulting from overcrowding and concomitant insanitary conditions.

The infantile mortality was higher in St. George, Southwark, than elsewhere in the Metropolis, the deaths of infants under one year of age being 188 to every 1,000 births, as compared with 155 per 1,000 in the larger area. Of a total of 1,509 deaths at all ages in St. George, Southwark, 669 occurred under five years of age, giving the high percentage of 44·3 out of the total number of deaths, as compared with the percentage of 39·9 for all London. "Chronic wasting disease, due to mal-nutrition from improper feeding, and mostly in hand-fed infants, is the chief cause of these deaths. Untaught and ignorant mothers commonly feed their offspring during the first months of life, without the advice of a doctor, upon farinaceous food, such as baked flour, arrowroot, cornflower, biscuits, tops and bottoms, or any so-called infants' food, which they are totally unable to digest. This treatment is not infrequently varied by an occasional dose of one of the numerous narcotic teething powders, cordials, or soothing syrups. As a natural consequence the unfortunate infant dwindles, and sooner or later succumbs, practically starved, and the death certificate often describes this cause of death under some such vague and high-sounding term as 'Marasmus,' 'Tabes,' or 'Atrophy.'" Dr. Waldo considers open spaces, restricted to the use of children, as urgently needed within the district; and he also advocates the increase of the self-supporting crèches within the parish as a

means of reducing the sickness and mortality of the offspring of a large class of mothers who work during the day in factories and workshops.

Speaking of water supply, Dr. Waldo is evidently not of the same opinion as some sanitarians, who are so suspiciously in favour of Thames water for London that they almost go out of their way to praise the companies supplying it. In fact, he speaks of it as "sewage contaminated," an opinion which most persons would endorse who took a trip up the river to Oxford; and, in view of the probable advent of cholera, he urges the desirability of a system of double filtration as an extra precaution against the risks attending its use. "The only real way out of the difficulty," he concludes, "will be eventually to substitute another source, such as deep wells or uncontaminated lake." It may interest supine householders—especially those supplied by the two following companies—who regard the metropolitan water supply as of secondary importance, to know that, according to the number of microbes or germs contained, the Southwark and Vauxhall Company's water is the worst of the waters supplied by the London companies, and that of the Lambeth Company runs it closely for second place in that unenviable respect. Our article on "Constant *versus* Intermittent Supply" (HYGIENE, August 18) receives strong confirmation from Dr. Waldo's comments on cistern-storage. He says that a large number of the numerous water cisterns placed on the roofs of the 41 artisans' model dwellings (we are responsible for the italics) are either without covers or imperfectly covered, and removed a few feet only from the free vents of the soil pipes, in addition to which the contained water is often filthy owing to the want of frequent cleansing and efficient supervision.

In accordance with the Housing of the Working Classes Act, 1890, 99 houses were reported unfit for occupation owing to their insanitary condition; 43 of these were closed by order of the magistrate, and have since been mostly demolished, while in the case of 56 others, very extensive sanitary works were effected, pending which the magistrates' order for closing lay in the office, "in the interests of the unfortunate tenants." A considerable amount of tenement property, occupied by 424 families, was examined in the last seven months of 1892, at the request of the respective owners, with a view to obtaining the certificate of the medical officer of health, so as to obtain exemption from inhabited house duty, under the provisions of the Customs and Inland Revenue Acts, 1890-91; but the standard of require-

ments was reached in only one instance—that of a house containing five families.

There are now only 7 slaughter-houses in Southwark, as against 10 in 1882; they have been regularly inspected and found to be satisfactorily conducted, but, as Dr. Waldo points out, the replacement of private slaughter-houses by public municipally-directed “abattoirs” is very desirable, in the interests of public health. Foremost as our country stands in sanitary affairs generally, England is behind the Continent and the United States in this respect.

The result of a systematic inspection of the 63 retail bakehouses within the parish of St. George, Southwark, was that Dr. Waldo found them, with a few exceptions, “in a filthy and unwholesome state, dangerous alike to the health of the journeyman baker who makes the bread, and to the public who eat it.”

In the Sanitary Department, Messrs. John Edwards and Joseph A. Anscombe, sanitary inspectors, have been unremitting in their attention to the various and important duties devolving upon them.

ATHLETIC SPORTS IN RELATION TO PUBLIC HEALTH.*

By HENRY HOOLE, M.D. (Lond.),
Author of the “Science and Art of Training.”
(Continued from page 186.)

PART II.—MODERN ATHLETICISM.

ONE feature which has characterised the present century has been the marked revival of outdoor recreations, and to this, in a great measure, may be attributed the improved physique of the English middle class. Statistics compiled about forty to fifty years ago gave, I find, the following averages:—

Lower middle class:—Twenty to twenty-five years; height, five feet, eight and a half inches; weight, ten stone, seven pounds.

Upper middle class:—Twenty to twenty-five years; height, five feet, nine and a half inches; weight, ten stone ten and three-quarter pounds.

While at mature age, viz., the thirtieth year, the standard of chest-measurement adopted at our insurance offices for a man of five feet, nine inches was thirty-nine inches. The difference of social status had, therefore, up to about 1850, only slightly increased the bodily development of the upper middle class; but whether the same will be said a few years hence I have considerable doubt, for,

since the compilation of these statistics, each generation of the more favoured section has exhibited material physical improvement.

The great expansion of athletic sports dates, however, from just upon the year 1860, and by many is thought to be contemporary with the birth and spread of the Volunteer movement. Be this as it may, various causes were in operation. The removal of the stamp tax and the paper duty had created a demand for cheap literature, national prosperity had shortened the hours of labour, and the facilities for travelling were greater. Whatever the cause or causes, the newspaper press and other branches of trade interested in the growth of muscular games speedily saw the rich harvest to be reaped by ministering to the popular bent. At that time there was no daily paper exclusively devoted to athletic sports; one was published twice a week, but it had only existed a year. The remaining literature consisted of three or four weeklies, with the same number of monthly magazines. The oldest and most read of the latter, so meagre was copy, had to fill its pages with reports of horse-racing, with articles on natural history, with criticisms of plays, and with reviews of books. What is now the condition of sporting journalism? Excluding papers devoted solely to the Turf, the sum total amounts to five daily papers, one bi-weekly, forty-six weeklies, a dozen or more monthly, and an equal number of annual periodicals. A glance through the advertisement columns of this ever-growing industry reveals at once the enormous increase of trades, the existence of which depends upon the pastimes of our youths.

Thirty years ago, outside the public schools and the colleges, there were very few athletic clubs. To-day each game counts them by the dozen—by the hundred; and these again are combined into Associations, Alliances, Leagues, and Tournaments.

To meet the requirements of the enthusiasts of sturdiness of limb, grounds, the property of the clubs, of private individuals, or of companies, have been established in great number throughout the country. Naturally, such a rapid development of the public taste has vastly affected sport, the athlete, and society. In the year 1866 the London Athletic Club systematised the principal out-door games, and recorded the best performance in each. It is, therefore, easy to trace any falling off or any improvement in this respect. Year by year contests have been done quicker or more deftly, and out of eighteen records of different forms of athleticism twelve were made during the last four years. Again, many ancient pastimes, as hockey and golf, which in England at least were fast becoming obsolete, have

* Part I., “The Evolution of Skilled Muscular Exercise,” appeared in *HYG. ENR.* for August 11.

not only been revived, but their use has been widely extended; while new ones, as lacrosse, cycling, and lawn-tennis, have been introduced.

The implements of sport and the facilities for recreation have likewise improved. To these, and to the fact that a hundred compete now where one contended thirty years ago, must be attributed, in some measure, the finer physique and the greater prowess of our modern athlete. Francis Galton, an authority on such matters, gives interesting evidence of this amelioration of the upper middle class. When he was an undergraduate at Cambridge from 1840 to 1844, although but five feet nine and three-quarter inches in height, he was taller than the majority of his fellows. In addressing them he habitually lowered his eyes, and, if in a crowd, he could readily see over the heads of the people. Writing in 1883, he states that he no longer possesses these advantages. Altered social conditions, in his opinion, have helped to improve the bodily powers and address of this class; such conditions, for instance, as more wholesome and abundant food, better cooking, warmer clothing, moderation in the use of alcohol, better ventilated sleeping rooms, more change through holidays, and, lastly, the healthier lives led by women in their girlhood. With this physical progress there has been a corresponding moral one. The youth of the leisured order is not now so addicted to the idle habits, the bad language, the gambling, and the unmanly amusements of his forefathers. Exercise has taught him to be choicer in his dress, and perhaps more lavish in the use of water. The purer mental tone has insensibly permeated more or less other grades of society, and the streets of large towns are not so thronged as they were with drunken and dirty roughs.

The prominence given to all bodily exploits by the sporting and general press has likewise directed public attention to the question of physical education. At the present time parental disfavour does not fall upon the youth who exhibits an inclination for the cricket field or the river. In his father's days a similar taste was often regarded as the signs of an idle or reckless nature, and sternly discouraged. This is all changed. Cricket and rowing are now deemed as essential for the lad's future welfare as a knowledge of arithmetic, and, what is also a great social gain, the privilege of outdoor pursuits is in many cases extended to his sister. Principals of schools have been quick to discern the public tendency, and their advertisements and prospectuses make a great feature of gymnasia and large playgrounds.

Such, briefly, are some of the substantial results of

this great revival and extension of athletic sports. Whether the benefits have been equally distributed or not among the whole of the middle class will, however, be better seen after a consideration of a few of the agencies which have encouraged the popular taste.

An enormous amount of capital has been sunk, and is being sunk, in sporting journals, in the manufacture of sporting goods, and in the creation of athletic grounds and institutions. These industries do good, beyond all question, by supplying a public want, by employing workpeople, and by adding to the prosperity of the country. On the other hand, there is every reason to suppose that the supply is far in excess of the demand, and that the latter is unduly stimulated by means detrimental both to our national pastimes and to the public health.

The unprejudiced reader of a sporting paper must be struck with the novel and unmerited dignity which is given to mere diversions. His eye is greeted with lithographed portraits not only of leading athletes, but of youths of the ninth or tenth rank. Biographies of the latter relate the successes and the trivial events of their short life; and the writers of these sketches have indeed to exercise much ingenuity, for the materials are scanty, and details carried too far back would find the subject of their praise in the nursery. Our ablest journalists are also pressed into the service. Pens which yesterday were engaged in illuminating with power and lucidity some dark political situation are to-day exalting, by picturesque and graphic phrases, the struggles and vicissitudes of a football match. The educated world is astonished at the literary display, but probably not more than the *littérateur* himself. Nor does the new journalism end here. Contemptuous epithets are liberally bestowed upon the more sober relaxations of those who have neither the liking nor the aptitude for Olympian games. Unless a Juvenal comes to the rescue, will not foreign critics alter their accusation, and say, not "that in England they worship the horse," but "that they worship the athlete"?

The implement maker, in order to push his wares, subsidises a stripling renowned in his special pastime. Should the agent be successful in the contest, his name and the name of the instrument used are made notorious in the sporting press throughout the length and the breadth of the land by advertisements, and by paragraphs which are generally disguised advertisements.

Another method of stimulation, and one much favoured by all the industries dependent on sport, is the draw of valuable prizes, and of gold medals for best records. Hundreds of pounds are in this way expended in one

afternoon's meeting; and usually the popularity of the machine, the increased sale of the paper, or the large amount of "gate money," more than repays the outlay.

National recreations are unduly fostered by other means. Clubs and associations appear to be infected with an intense feeling of rivalry, and, in order to maintain their reputation, descend to very dubious practices. Salaried posts are found for their skilled members, prominent players are enticed from opposition clubs, and promising beginners, irrespective of their young age and want of stamina, are effusively welcomed.

Within recent years, too, the leisured classes have made regattas, pedestrian contests, assaults of arms, lawn-tennis tournaments, bicycle races, more and more places of fashionable resort. Each sport has its titled and wealthy patrons, while the social regard extended to the latter-day possessor of stalwart frame and iron muscle almost compares with the favour shown to the gladiator in the days of the Roman Empire.

To these agencies I ascribe the forgetfulness of the motive of exercise; the conversion of recreation into an arduous and exacting pursuit; the degeneration of rational emulation into a fierce competition; the alteration for the worse in the character of some of our pastimes, and the grafting upon them of eccentric offshoots. I cannot, perhaps, better emphasise these assertions than by giving instances drawn from cycling, football, and swimming.

Of all the articles designed for open-air amusement, I know of no more beautiful piece of mechanism than the bicycle. Its use is easily acquired, its cost within the means of nearly everyone, and its practice available both to the young and old throughout the greater portion of the year,—yet, in many cases, its possession, if the owner be a young man, appears to develop a desire to cover distances, more or less far, in the shortest possible time; and despising the pleasure of moderate indulgence he scours the country indifferent to scenery, to blinding dust, and to scorching rays. Although one of the latest of our out-door games, it surpasses them all in its number of competitions, and in its records—records for all sorts of machines, and for all kinds of distances, from the fractions of a mile to a hundred or more, while gold medals and championships are awarded with bewildering profusion.

The record-breaker, attended by his timekeepers, his pace-makers, is fast becoming a common object on our country roads. With eyes staring fixedly on the ground, face red and perspiring, the body crouched over the handle of the machine, his legs violently working, he appears the moving realisation of toil and dis-

tress. The thoughtful observer must ask himself, What has this health-giving recreation done to deserve such degradation? What charm can exist in such labour? And what benefit to the mind or the body can possibly result from it? To tax still further the undeveloped heart and lungs of growing lads, another absurd variation in competition is practised, namely, hill climbing. One instance of this will suffice. In 1889 twenty-one cyclists raced up one of the Surrey hills, the gradient of which in the steepest part was one in seven, and the distance of the course three-quarters of a mile. Can folly farther go?

The Rugby form of football has within recent years acquired an unenviable notoriety for broken limbs and fatal accidents. When played, however, in a reasonable manner, with manly consideration and absence of temper, its dangers are proportionately decreased, and the football field becomes certainly a splendid school for developing hardihood and courage. The great turn of speed and the bodily elasticity possessed by lads from sixteen to twenty materially lessen for them some of the hazardous features of the game. But played as Rugby and Association football now is, by powerful, heavy men, with scant courtesy, almost ferocious rivalry, and in long competitions for challenge cups, both forms of the game can only be regarded as dangerous and brutal pursuits. Should the player be lucky or hardy enough to escape apparently the mishaps and exposure of the recurring weekly cup encounters, and be able to contend in the final match, he cannot yet be said to have passed through the ordeal unharmed. Repeated dashings of the body to the ground have violently shaken the delicately-organised brain and spinal cord and the internal viscera; and these concussions, approaching in severity at times those of railway collisions, are in after years the cause of lessened mental and physical energy, impaired memory, and even paralysis.

What is a more enjoyable recreation on a warm summer's day than swimming? It brings into action, without risk of injury, nearly every muscle of the body, while the loss of heat from the brief immersion is hardly discernible and rapidly made up. The good derived from it threatens, I regret to say, to be speedily neutralised by the senseless practice in our variable climate of long-distance swimming and of water-polo tournaments. One of the primary laws of heat is quite disregarded, and the dangerous cooling of the surface of the body seriously congests the nervous system, as well as the lungs and kidneys. Is it to be wondered at if these exhibitions are followed by sickness, weariness, exhaustion, and at times by death? Objectors to this statement will

instance the long hours spent in the water by savages and natives of southern climates, and will likewise remind me that Captain Webb during and after the Channel swim never felt cold.

Let me point out that the free exposure of the body for a few moments to a tropical sun restores the lost heat, and also that the gallant swimmer was a man of extraordinary vigour and of an exceptional physique. A leading surgeon, accustomed to the examination of well-proportioned and vigorous men, has recorded his astonishment at, and admiration of, the bodily endowments of the late Captain Webb. If five per cent. of our water-polo and long-distance swimmers can show the same endowments, and if in this country we have each summer two months of continuous warm weather, I will retract the previous assertion.

Time will not allow me to notice other erratic diversions from genuine recreations. Let me, however, protest against public foot races for boys under fourteen and for men over forty. The exertions are likely to be attended with serious consequences to the runners, while the races, from their very nature, cannot be a pleasant sight to the true lover of sport.

Emulation, I am fully aware, is inseparable from all actions of men, be they of vocation or of pleasure. It gives a zest to exercise, and, when kept within reasonable limits, promotes the attainment of robust health. But the old-world emulation, the natural desire to exhibit superior dexterity for honour and not for reward, has been converted into a feverish competition as much for social regard as for valuable prizes. And this competition is sustained at a dangerous point by the capitalist, who looks upon the athlete as an instrument for maintaining the steam power of his factories, by the clubs who desire his services to preserve their prestige, and by the wealthy idlers, who see in him the means of making less tedious their slow hours of leisure. Adventitious influences like these are inducing lads not out of their teens to indulge recklessly in undue bodily exercise, and to incur such departures from health as faintness, loss of appetite, restlessness, and high fever, if not more serious maladies.

(To be continued.)

The Sanitary Appliances Museum at Highgate has been visited during the seven months ending on July 31st by more than 10,000 persons, a circumstance which proves the public appreciation. Similar institutions would be found useful elsewhere, in educating the public mind in sanitary matters, and their utility would be greatly enhanced by occasional lectures on hygienic subjects.

PATENT MEDICINES.*

By the EDITOR.

NO. XII. (NEW SERIES).—TESTIMONIALS ; CLARKE'S BLOOD MIXTURE ; MOTHER SEIGEL'S SYRUP.

THE people who "quack of universal cures," in the hope that they may "mighty heaps of coin increase" by this practice (*Hudibras*, Part III., Canto 1), are not over particular as to the means adopted, the end being the object which they keep steadily in view ; but, at any rate, common prudence should dictate to them the desirability of having a semblance of truth in the testimonials they print and circulate. For instance, in a weekly paper lying before us (dated August 20th) we find the proprietors of Clarke's Blood Mixture boasting in a whole column advertisement that they have the "largest sale of any medicine in the world," and that they possess "thousands of testimonials" ; a circumstance to which they apparently attach so much value that they relieve their pent-up feelings of pride by repeating the alleged fact three times in capital letters. Immediately under this statement we find the following :—

"*Clarke's Blood Mixture is entirely free from any poison or metallic impregnation, does not contain any injurious ingredient, and is a good, safe, and useful medicine.*"—*Alfred Swaine Taylor, M.D., F.R.S., Lecturer on Medical Jurisprudence and Toxicology.*"

If all the testimonials which the proprietors of the blood mixture make such a parade of are like that we have printed above, then we say that they must be the

* Some of the articles constituting this series have already appeared in *HYGIENE* when published as a monthly magazine, and were reprinted in two volumes. But as one of these—Vol. I.—is out of print, we propose, at the request of many readers, to commence a new series, as much of the matter will doubtless be fresh to the great majority of the readers of *HYGIENE* in its altered form. New reports and analyses will appear from time to time. No. I. (May 13th) included :—Patent Medicines ; Patent Medicine Law ; Mattei's Electro-Homoeopathic Remedies. No. II.—(May 20th), Clarke's Blood Mixture. No. III.—(May 27th), Clarke's Blood Mixture ; Chlorodyne and other Opiates. No. IV.—(June 9th), Revalenta Arabica. No. V.—(June 16th), The History of Patent Medicines ; The Sequah "Prairie Flower" and Oil. No. VI.—(June 23rd), Holloway's Pills and Ointment. No. VII. (June 30th), Correspondence about Holloway and Mattei. No. VIII. (July 7th), Concerning Advertised Testimonials of Clarke's Blood Mixture. No. IX.—(July 14th), Allen's World's Hair Restorer ; Mexican Hair Restorer ; Singleton's Golden Ointment for the Eyes ; Rowland's Kalydor and Gowland's Lotion for the Skin ; Mrs. Anna Ruppert's Skin Tonic ; Mattei's Electricities. No. X.—(July 28th), Quack Advertisements and Testimonials ; Mother Seigel's Syrup ; Clarke's Blood Mixture and the late Dr. Swaine Taylor. No. XI.—(August 11th), Clarke's Blood Mixture ; the Alleged Testimonial from the late Dr. Swaine Taylor, F.R.S. ; the Obverse and the Reverse.

possessors of the largest collection of false documents ever brought together. In HYGIENE of August 11th we put five straight questions to the Blood Mixture people, plain enough and easy to answer, viz.—1. When, where, and under what circumstances, did Dr. Swaine Taylor give the alleged testimonial? 2. By whom was the signature witnessed? 3. When and where can the original be inspected? 4. Why did the proprietors of the blood mixture withhold from public knowledge so important a testimonial until years after Dr. Taylor's death? and 5. How do they account for using it so extensively directly after we published his undoubted and unchallengeable opinion in our article of May 20th on Clarke's Blood Mixture? These questions have not elicited any reply, and we did not expect that they would, for the simple reason that they are unanswerable. We gave more than sufficient grounds for the conclusions we have arrived at, and these are:—(1) That Dr. Swaine Taylor never gave the alleged testimonial; (2) that, consequently, no one ever witnessed his signature; (3) that, either no such testimonial exists, or if there be any such document in existence, inspection would prove it to be an unmistakable forgery. In short, the name of a scientific man of high reputation and of undoubted integrity has been used for base purposes after his death.

Sometimes, in their haste, patent medicine vendors commit the error of treating the doctor as dead while he is yet alive. For instance, several years back, the proprietors of the quack remedy called Mother Seigel's Syrup largely advertised a testimonial from a railway guard, in which they made very free use of the name of a well-known Manchester medical practitioner, who was wrongly described—not the only false thing in the guard's testimonial, by the way—as the late Dr. Dacre Fox. But the *late* Dr. Dacre Fox turned up most inconveniently, for, instead of being dead, he had only changed his residence. He brought an action for libel against the Seigel's Syrup proprietors, which was heard before Mr. Justice Laurance at the Leeds Assizes, with the result that the jury awarded him £1,000 damages. The defendants obtained stay of execution only by paying £1,000 into court pending an appeal; and they were no more successful in London than at Leeds. The judges sitting in the Court of Appeal were the Lord Justices Lindley, Bowen, and Kay. On the conclusion of the arguments, Lord Justice Lindley, in giving judgment, commented severely on the conduct of the defendants.

It certainly appeared to him, Lord Justice Lindley observed, that the defendants had published the libel under the impression that the plaintiff was really dead, and that they would be perfectly safe, inasmuch as the person libelled was dead, and could not turn up against them. Unfortunately for them, Dr. Fox was alive, and instituted an action. The defendants tried to justify the libel, which they unquestionably failed to do. There was not a tittle of evidence to show that Dr. Fox had been guilty of the conduct which they imputed to him. The whole object of the libel was to puff the defendants' wares, and they went out of their way to libel the plaintiff for the purpose of puffing their own quack medicines. They were utterly unscrupulous as to the means taken by them, so unscrupulous that they did not shrink from casting blame upon a person supposed to be dead. The Court saw no reason to either grant a new trial or reduce the damages; therefore the appeal would be dismissed with costs. Lord Justices Bowen and Kay concurred in this decision.

We have various other anecdotes which we could tell concerning patent medicine testimonials, but we reserve them for future articles, to appear in early issues of HYGIENE, upon the nostrums to which they relate.

Duelling is the most senseless survival of the olden times, when "wager by battle" was a recognised legal mode of redressing real or imaginary wrongs. Betting has been described as a fool's argument. In like manner duelling—especially as conducted in France—is the argument of a coward or a bully, who hopes to gain notoriety and to escape consequences. As Russia is just now in France's good graces, we would recommend the French Minister of Justice to imitate the stern measures with which Russia proposes to put down duelling. A new decree ordains that in future a duellist who kills his antagonist will be liable to six years' imprisonment, a minor degree of punishment being meted out to anyone who wounds his opponent in a duel, or endeavours to provoke a duel. "They manage these things better in France," is an old saying. As regards duelling, substitute "Russia" for our neighbour across the Channel.

* * *

The Poor are Always with Us, according to scriptural authority, but not always to the same extent, according to the rate books. Last year, the rate per head of the expenditure on the relief of the poor was smaller than in thirty-one out of the forty-nine years included in the Blue Book just issued. The total amount expended in relief to the poor, in 1892, was £8,841,678.

BRITISH HEALTH RESORTS.*

No. VI. (NEW SERIES).—CROMER.

By ALEXANDER WALLACE, M.D., Physician to the
Essex and Colchester Hospital.

I STARTED in the middle of September to visit a locality until then unknown to me—the northern coast of Norfolk; staying at a pretty village inland about ten miles from Cromer, on a line of railway opened a few years back, from Peterborough *via* King's Lynn to Cromer. I was struck by the sylvan beauty of the scenery, by its richly wooded, undulating country, its extensive views, the apparent fertility of the soil (a light-loam on flinty marl), the excellence of its roads made from the underlying flint, the picturesqueness of its cottages and churches—built mostly of flint rubble—the abundance and excellence of its water supply, and by the cool, bracing breezes, which sharpened my appetite, made exercise a pleasure, and gave me sound sleep.

I was told, and I think truly told, that this part is the healthiest and most beautiful in East Anglia.

On inquiry, I learned that the parish I was staying in contained 264

souls. Of these, two males were over 90 years old; three males and six females over 80 years old; three males and five females over 70 years; in all 19 out of 264 (or about 1-14th) exceeded the age of threescore years and ten. I shook hands with an old labourer aged 91, who had walked two miles into the next village, and was returning thence; he walked stiffly but well, and he attended that evening the Harvest Thanksgiving service. This longevity is, I was told, characteristic of the neighbourhood, and not of that village specially.

The northern coast of Norfolk, from Blakeney to Cromer, consists of a range of well-wooded, undulating

hills and dales, running along at a distance from the coast line of from one to three miles; the intervening space mostly a moderate descent towards the cliffs, which run from 30 to 50 feet high, and in places ascend to 70 to 100 feet or more above sea level. Along the whole coast is a broad sandy beach, while every here and there are well-wooded sheltered valleys and nooks running inland, adding greatly to the charms of the scenery, and affording valuable sites—sheltered from cold winds, and showing a more or less southern aspect—for the residence of invalids. The villages were small and few, and it seemed a country all but unknown to visitors.

The climate, as described to me, was cold and dry but healthy, cases of phthisis not common, rheumatism and liver congestion, on the other hand, not infrequent; longevity marked.

At Cromer itself, as at Margate, the sun *rises out* of the sea *to the right hand* of a person looking seaward, and *sets to the left hand* in the sea, causing a confusion as to the points of the compass generally known as mental lefthandedness. But this curious result follows: Looking seawards there is no glare, the sun being behind the



CROMER.

back; windows facing the sea are in the shade, so also are the seats at the base of the cliffs; hence, Cromer would seem from its bracing, cool air and from this peculiarity of aspect to be the very place for convalescents suffering from many forms of eye diseases; of course, facing the north, it is cold enough when the wind is in that quarter.

Cromer, though known as a watering place for the last hundred years, is still only partly developed—a small village, end on to the sea, with short narrow streets, very crowded, having a large church and graveyard in its centre. The houses are for the most part small, generally lodging-houses; two or three hotels, some large boarding houses, and a few more recently and better built lodging-houses on the outskirts of the town, give accommodation to perhaps 2,000 visitors.

Two lines of railway: the Great Eastern from

* The places already described in this new series are—No. 1, Swanage (with illustration), HYGIENE, May 13; No. 2, Lowestoft (with illustration), June 16; No. 3, Clacton-on-Sea and Walton-on-the-Naze, July 7; No. 4, Yarmouth (with illustration), August 4; No. 5, Ilfracombe (with illustration), August 18.

Norwich, and the before-mentioned line from Spalding and Peterborough, through King's Lynn, afford access.

A splendid sandy beach, a small pier, good cliffs from 40 to 1000 feet high or more, magnificent undulating, well wooded country running inland on either side of Cromer, rivalling, and I think surpassing in picturesque beauty, that in the vicinity of Hastings; breezy walks on short, crisp turf (rapidly drying after a shower) along the cliffs and over the lighthouse sand hills (where there is an excellent golf ground), a water supply—some years back faulty, but now remedied—a splendid bracing, appetising air, and you have Cromer; a place as yet not fully conscious of its many advantages as a watering-place and health resort (and kept so because three out of five of the principal landowners will scarcely sell their land), but possessing many sheltered walks and nooks where I feel sure consumptive patients might pass the winter with advantage in a dry, cool, sunny, bracing atmosphere.

I wish to draw attention to the sanitary advantage of this, the North Coast of Norfolk. Hitherto it seems to have escaped much notice, but the area is large, and has many spots that possess great climatic advantages, in addition to their physical beauty, and now that a railroad runs along the coast-line, bringing Cromer into connection with the Midland and North-Western counties, many a patient, who might otherwise be sent abroad to winter, would be glad to take advantage of its cool, invigorating air, and sunny, sheltered sites.

THE SKIN.

By SIR ALFRED POWER, K.C.B.

There's a skin without, and a skin within,
A covering skin and a lining skin;
But the skin within is the skin without,
Doubled inwards and carried completely throughout.

The palate, the nostrils, the windpipe and throat,
Are all of them lined with this inner coat,
Which through every part is made to extend,
Lung, liver, and bowels from end to end.

The outside skin is a marvellous plan
For exuding the dregs of the flesh of man,
Whilst the inner extracts from the food and the air
What is needed the waste of the flesh to repair.

T'oo much brandy, whisky, or gin
Is apt to disorder the skin within,
While, if dirty and dry, the skin without
Refuses to let perspiration come out.

Good people all, have a care of your skin,
Both of that without and that within;
To the first give plenty of water and soap;
To the last, little else than water, I hope.

But always be very particular where
You get your water, your food, and your air,
For if these be tainted, or rendered impure,
It will have its effect on the blood, be sure.

The food which will ever for you be the best
Is that you like most and can soonest digest;
All unripe fruit and decaying flesh,
Beware of, and fish that is not very fresh.

Your water, transparent and pure as you think it,
Had better be filtered and boiled ere you drink it,
Unless you know surely that nothing unsound
Can have got to it over or under the ground.

But of all things the most I would have you beware
Of, is breathing the poison of once breathed air;
When in bed, whether out or at home you may be,
Always open the window and let it go free.

With clothing and exercise keep yourself warm,
And change your clothes quickly if caught in a storm,
For a cold caught by chilling the outside skin
Flies at once to the delicate lining within.

All you who thus kindly take care of your skin,
And attend to its wants without and within,
Need not of the cholera feel any fears,
And your skin may last you a hundred years.

FLESH DIET AND VEGETARIANISM.

(From the Croonian Lectures, delivered by Dr. C. B. RADCLIFFE, at the Royal College of Physicians, London.)

I CONFESS to being a heretic in matters of diet. Do what I will, I cannot bring myself to accept the current belief that butcher's meat is food *par excellence*, and that all other food is little more than "padding." On the contrary, I feel convinced that views and practices in this respect have changed infinitely for the worse, and that herein, perhaps, may be found one main reason why various nervous disorders are so numerous and often so difficult to deal with.

Few persons with any practical experience will, I think, maintain that the diet of "Training," which is, relatively, rich in lean meat and poor in the other constituents of diet, especially in the oleaginous, can be kept up for any length of time with absolute impunity. The fact, indeed, is simply this, that an extraordinary degree of muscular strength is got up, not by the diet simply, but by the whole plan of

training, in six weeks or thereabouts, and that, afterwards, the man in training gets out of "condition," every day perceptibly losing muscular energy and firmness and pluck, and becoming headachy, feverish, and out of sorts in every way.

Often, indeed, do I meet with persons who are just in the state of those who have been over-training, who are not "up" to any work, bodily or mental, and who tell you that they cannot for the life of them tell why they are so, for they have not been taking it out of themselves by work of any kind, and have been doing all they could to keep up their strength, drinking beef-tea by the quart, eating meat three times a day, and so forth, and who get well with little else to help them when they begin to eat like other people, taking everything, and not too much of anything—and who do not get well until they do as just stated.

And most assuredly the actual experience of different people is not to be appealed to in proof of a contrary conclusion. The strapping gillie of the Scotch Highlands, the chief staple of whose food is oatmeal, with a little milk, is certainly not wanting in muscular strength and power of endurance; on the contrary, as every one will admit who has had to keep up with him in a hard day's deer-stalking, for he is "all wind and limb" when his master for the time being is panting and staggering. Nor is the case of the gillie different from that of the Italian labourer, who is seen at work unloading the small coasting corn-vessels on the beautiful shores of the Bay of Naples, whose food is made up chiefly of Indian-corn pudding or polenta, with a little macaroni and a little oil. This man may be lazy enough, but when called to work he works well enough, as is sufficiently proved by the light way in which he dances from the vessel over the black sand with the heavy sack on his shoulders, and this, not once or twice only, but for hour after hour, even in the heat of the day.

It is certainly possible for people to enjoy excellent health upon the most different kinds of food. No doubt there are individuals who take kindly to animal food, and others who do not. Most probably a properly mixed diet is best for the generality of people, in this country at least; but all the evidence, as I can read it, is against the notion that meat is to be the food which must be had at any price. At all events, I cannot help thinking that the present practice of urging persons at all weakly, especially children, to eat as much meat as they can may have not a little to do in causing the development of many nervous disorders, and in deranging the health in other ways besides—

perhaps in causing liver and kidney and other glandular disease, by overtaking the eliminating powers of these organs.

It is high time, I take it, now that meat of all kinds is only to be had at high prices, that all people, and particularly the poor, should be shown that animal food is not so essential as they believe it to be. It is high time, for instance, that the English poor should be taught to imitate the French in their diet. But I must not dilate upon these matters, nor must I attempt to lay down any definite rules of diet. Indeed, all that I must allow myself to do is to reassert my belief that excess of animal food, relative or actual, is a very important cause of many disorders of the nervous system, and that in the prevention and treatment of these disorders it is all-important that the oleaginous and farinaceous articles of diet, rather than the nitrogenous, should be fully supplied.

I maintain, indeed, as I have long done, that the nerve tissue (which consists in great measure of a kind of fat) is starved if the hydrocarbons are withheld, and that this withholding is one main reason for the speedy breaking down in over-training; and I further believe that this is not the only way in which the want of hydrocarbons operates mischievously. Indeed the fact that muscular work shows itself in the amount produced of carbonic acid convinces me that the hydrocarbons are necessary for action as well as for nutrition in nerve and muscle—are necessary, perhaps, in keeping up the electrical charge of nerve and muscle which, as I believe, has so much to do with nervous action and muscular action.

A REPORT ON "SANITAS" PREPARATIONS AND APPLIANCES.

(Comprising a large number of Experiments undertaken to ascertain their Disinfecting and Germicidal Power.)

By A. B. GRIFFITHS, Ph.D., F.R.S. (Edin.), F.C.S.
(Member of the Chemical Societies of Paris and St. Petersburg, author of "A Manual of Bacteriology,"
"Researches on Micro-Organisms," &c.)

BEFORE any substance may strictly be called a germicide or disinfectant, certain conditions must be fulfilled. It is necessary to place the microbes in the substance for a definite time, then to remove them thence, and to place them in a nourishing medium; if they do not grow, there is no doubt that the exposure has destroyed them. In the case of pathogenic microbes, a substance, to be

called a germicide, or disinfectant, must be shown to possess this power, that when the microbes are exposed to the substance, and then introduced into a nourishing medium, they refuse to grow; and it must also be demonstrated that when introduced into susceptible animals they are incapable of producing the diseases which the same microbes, unexposed to the substance in question, do produce. It is also essential in the treatment of infectious diseases that not only the pathogenic microbes should be destroyed, but also the poisonous substances (ptomaines), which they indirectly produce. If any substance answers these conditions, we are justified in pronouncing it a germicide or disinfectant; and such a substance, according to its power, may be of the greatest value in the treatment and prevention of infectious diseases.

We now describe our experiments with "Sanitas Oil," "Sanitas Fluid," and "Sanitas Emulsion" on certain pathogenic microbes.

FIRST SERIES OF EXPERIMENTS.

(a.) Silk threads were impregnated with certain microbes, which were then immersed in "Sanitas Oil." The results were as follows:—

Bacillus tuberculosis (microbe of consumption)	
was destroyed in exposures of 25 seconds	
Micrococcus scarlatinæ (microbe of scarlet fever)	
was destroyed in exposures of 10 "	
Bacillus typhosus (microbe of typhoid fever)	
was destroyed in exposures of 30 "	
Spirillum cholerae Asiaticæ (microbe of cholera)	
was destroyed in exposures of 43 "	
Bacillus diphtheriæ (microbe of diphtheria)	
was destroyed in exposures of 28 "	
Bacillus mallei (microbe of glanders)	
was destroyed in exposures of 25 "	

The destruction in each case was proved by inoculating tubes containing various nourishing media, but no growths made their appearance in any of the tubes after the lapse of several weeks' incubation at the temperatures most suitable for the growth of each of the above-mentioned microbes. Besides, several of the silk threads after the exposures were washed with a small quantity of sterilised water, and a few drops of each fluid were used in inoculating suitable animals, but with negative results; that is to say, the respective diseases were not produced in these animals. These experiments prove that "Sanitas Oil" is a powerful germicide.

(b.) Silk threads were impregnated with the same microbes, which were then immersed in "Sanitas Fluid." The results were as follows:—

Bacillus tuberculosis was destroyed in exposures of 5 minutes	
Micrococcus scarlatinæ	" " " 2½ "
Bacillus typhosus	" " " 5½ "
Spirillum cholerae Asiaticæ	" " " 6 "
Bacillus diphtheriæ	" " " 4½ "
Bacillus mallei	" " " 4 "

The following results were obtained with "Sanitas Fluid" of 50 per cent. strength:—

Bacillus tuberculosis was destroyed in exposures of 9 minutes.	
Micrococcus scarlatinæ	" " " 6 "
Spirillum cholerae Asiaticæ	" " " 16 "
Bacillus typhosus	" " " 12 "
Bacillus diphtheriæ	" " " 10 "
Bacillus mallei	" " " 9 "

And with "Sanitas Fluid" of 25 per cent. strength the following results were obtained:—

Bacillus tuberculosis was destroyed in exposures of 22 minutes.	
Micrococcus scarlatinæ	" " " 20 "
Bacillus typhosus	" " " 30 "
Spirillum cholerae Asiaticæ	" " " 40 "
Bacillus diphtheriæ	" " " 25 "
Bacillus mallei	" " " 25 "

(c.) Silk threads were impregnated with the same microbes as in the previous experiments, which were then immersed in "Sanitas Emulsion" mixed with an equal bulk of water (= 25 per cent. "Sanitas Oil"), and the following results obtained:—

Bacillus tuberculosis was destroyed in exposures of 4 minutes.	
Micrococcus scarlatinæ	" " " 2 "
Bacillus typhosus	" " " 7 "
Spirillum cholerae Asiaticæ	" " " 8 "
Bacillus diphtheriæ	" " " 2¾ "
Bacillus mallei	" " " 3 "

The destruction of the microbes in each case was proved by the methods already described in this report.

These experiments undoubtedly prove that the "Sanitas" preparations are germicides of great power, as they readily destroy some of the most deadly microbes which attack man and animals.

SECOND SERIES OF EXPERIMENTS.

In the second series of experiments "Sanitas Oil" and "Sanitas Fluid" were added to various tubes containing pure cultivations of the six pathogenic microbes already mentioned in this report.

(a.) WITH "SANITAS OIL."

DIPHThERIA.—Eight tubes, each containing 100 cc. of nutrient gelatine, were inoculated with *Bacillus diphtheriæ* from pure subcultures of the microbe; and after three weeks' incubation at 20° C, ½ cc. of "Sanitas Oil" was added to each tube, and the incubation continued for four days. It was proved that the "Sanitas Oil" had destroyed the microbes in each of the tubes, because no further growths could be obtained by inocu

lating a large number of tubes, containing sterilised nutrient gelatine, with the contents of the tubes in question. Moreover, a few inoculation experiments were made on animals susceptible to diphtheria with the contents of the said tubes, but with negative results.

Four tubes, each containing 100 cc. of alkaline bouillon (*i.e.*, a fluid medium), were inoculated with *Bacillus diphtheriæ* from pure subcultures of the microbe, and after three days' incubation $\frac{1}{2}$ cc. of "Sanitas Oil" was added to each tube, and the incubation continued for two days. It was subsequently proved that the "Sanitas Oil" had destroyed the microbes in each tube.

TUBERCULOSIS.—Four tubes, each containing 100 cc. of solid blood serum, were inoculated with *Bacillus tuberculosis* from pure subcultures of the microbe; and after twelve days' incubation at 37° C, 1 cc. of "Sanitas Oil" was added to each tube, and the incubation continued for six days. But in each tube the tubercle bacilli were completely destroyed.

GLANDERS.—Six tubes, each containing 100 cc. of solid blood serum, were inoculated with *Bacillus mallei* from pure subcultures of the microbe, and after three days' incubation at 38° C, $\frac{1}{2}$ cc. of "Sanitas Oil" was added to each tube, and the incubation continued for a week. But in each tube the bacilli were destroyed.

CHOLERA.—Ten tubes, each containing 100 cc. of bouillon (slightly alkaline), were inoculated with *Spirillum cholerae Asiaticæ* (Koch's microbe) from pure subcultures of the microbe; and after four days' incubation 1 cc. of "Sanitas Oil" was added to each tube, and the incubation continued for five days. But in each tube the microbes had succumbed to the action of the germicide. It was further demonstrated that it is quite impossible to inoculate gelatine plates (*i.e.*, plate cultivations) containing 1 per cent. of "Sanitas Oil" with the microbe of cholera; although when the "Sanitas Oil" was absent, the microbes gave rise to colonies on the surface of the gelatine.

TYPHOID FEVER.—Four tubes, each containing 100 cc. of nutrient gelatine, were inoculated with *Bacillus typhosus* from pure subcultures of the microbe; and after three days' incubation 1 cc. of "Sanitas Oil" was added to each tube, and the incubation continued for six days. But in each tube the microbes were completely destroyed.

The one-tenth cc. of "Sanitas Oil" in 100 cc. of bouillon was, however, incapable of destroying the microbe of typhoid fever; but 1 cc. of the "Oil" in 100

cc. of bouillon prevented the development of the microbe, or, in other words, destroyed its vitality.

SCARLET FEVER.—Six tubes, each containing 100 cc. of nutrient gelatine, were inoculated with *Micrococcus scarlatinae* from pure subcultures of the microbe; and after ten days' incubation at 18° C, $\frac{1}{2}$ cc. of "Sanitas Oil" was added to each tube, and the incubation continued for a week. But in each tube the microbes were completely destroyed. The same result was obtained when $\frac{1}{2}$ cc. of "Sanitas Oil" was added to pure cultivations of the microbe of scarlet fever in alkaline bouillon and milk (100 cc. of each).

(b.) WITH "SANITAS FLUID."

DIPHTHERIA.—Three tubes, each containing 90 cc. of alkaline bouillon; three tubes, each containing 95 cc. of alkaline bouillon; and three tubes, each containing 98 cc. of alkaline bouillon, were inoculated with *Bacillus diphtheriæ*, and after five days' incubation 10 cc. of "Sanitas Fluid" were added to each of the first three tubes, 5 cc. of "Sanitas Fluid" to each of the second three tubes, and 2 cc. of "Sanitas Fluid" were added to each of the third three tubes. In each case the incubation was continued for three weeks. In the tubes containing 10 per cent. of "Sanitas Fluid" the microbes were completely destroyed. In two out of the three tubes containing 5 per cent. of "Sanitas Fluid" the microbes succumbed to the action of the Fluid; but in the third tube the vitality of the microbes was impaired but not destroyed, because, after inoculating various nourishing media with the contents of the said tube, growths of *Bacillus diphtheriæ* made their appearance. In the tubes containing only 2 per cent. of "Sanitas Fluid" the microbes resisted the action of the Fluid—in other words, they were not destroyed.

Similar experiments were performed on the microbes of tuberculosis, glanders, typhoid fever, cholera, and scarlet fever, and in each case 10 cc. of "Sanitas Fluid" added to the nourishing media (90 cc. in each case) completely destroyed the said microbes. In the experiments with only 5 per cent. of "Sanitas Fluid" all the microbes resisted its action except the microbe of scarlet fever (*Micrococcus scarlatinae*), which succumbed; and finally, in the experiments with 2 per cent. only of "Sanitas Fluid," all the microbes, without exception, resisted the action of the "Fluid."

The destruction of the microbes in each case (in both series of experiments) was proved by experiments upon animals. These experiments were performed abroad.

(To be continued.)

NEWS AND NOTES.

Worthing.—We are glad to report that, according to latest returns, the epidemic of typhoid fever at this place is considerably abating. The local authorities have been unsparing, both of money and trouble, in coping with the outbreak, and the townspeople have ungrudgingly supported their efforts. Recent borings in the vicinity have led to the discovery of what is expected to prove a plentiful water supply of excellent quality. It is a significant fact that during the whole course of the epidemic not a single case of typhoid fever has occurred in West Worthing, which has a distinct water supply, although the two districts are contiguous, in the same manner as Brighton and Hove, or Hastings and St. Leonards.

* *

The Purchasing Power of Money.—This is a term frequently employed by writers on social economy. Divested of its technical character, it affords an indication of the relative value of money for the purchase of articles of general consumption, whether necessities of life or more fitly coming under the heading of luxuries. Since 1873 wholesale prices have been showing a decline, almost a progressive one. From a paper published in the last number of the Statistical Society's Journal it appears that the fall of wholesale prices has been so great in the twenty-one years that £67 in gold would now buy what £111 would have to have been paid for in 1873. Retail prices have dropped in a relative, though not perhaps quite so large a proportion.

* *

Hygiene in Germany will benefit during the coming winter from an arrangement which has lately been entered into by six of the German universities, which have combined for the purpose of carrying out a scheme for the delivery of courses of lectures on sanitary subjects; but even here red tape deprives the movement of half its value, for the lectures—which will include such diverse matters as drainage, the disposal of refuse, plumbing, the slaughtering of cattle, disinfection, ventilation, and laundry work—will be open only to Government or Municipal officials.

ANSWERS TO CORRESPONDENTS.

M. O. H.—We shall be pleased to receive the report.

R. B. (Glasgow).—If you cannot get *HYGIENE* regularly through your local agent, subscribe direct. Our publishers will supply you, post free, for 6s., to cover a whole year, commencing at any date.

Mrs. W. (Portsmouth).—The watering-place you name will receive early attention in the new series of articles on British Health Resorts. Swanage appeared in *HYGIENE* for May 13th.

Dog Bite.—You would have little chance of obtaining compensation (except for damaged clothing), unless you

could show that the dog is habitually ferocious, or that the circumstance of someone having been bitten by the dog previously to your own injury had been brought to the knowledge of his owner. Law and equity are not identical terms, and however equitable it might be that you should receive compensation, the law lays down the maxim that a dog is entitled to a first bite.

A Smoker.—Yes, at one time smoking was indulged in, in theatres, where the gallants sat in chairs on either side of the stage, smoking their pipes. The practice probably prevailed also in churches, for in 1615, when James I., author of the "Counterblast" against smoking, visited the University of Cambridge, the Vice-Chancellor issued a notice enjoining that "Noe graduate, scholler, or student, of this Universitie presume to take tobacco in St. Marie's Church, upon payne of finall expellinge the Universitie."

A Dyspeptic.—Try Nature's three grand remedies, air, light, and exercise, for the next few weeks, and discard the quack systems you have foolishly allowed yourself to have been made the victim of.

H. H. (Swansea) and Senex (York) are referred to the reply given to R.B.

A Gardener.—The berries of the *Mahonia aquifolium* are poisonous, but not to a marked extent.

A Student (St. Thomas's).—We should recommend you to read up for the D.P.H. diploma.

EDITORIAL AND PUBLISHING NOTICES.

EDITORIAL.—The Editor begs to express his thanks to numerous correspondents, and to state that he will be pleased to receive any articles or correspondence coming within the scope of *HYGIENE*, reports of medical officers of health, items of general or local sanitary interest, newspapers (marked at the part to which it is desired to draw attention), &c.

PUBLISHING.—The terms of subscription not having been raised, although under the new arrangement fifty-two numbers instead of twelve will be sent out annually, all subscriptions now running will continue good for the original period.

HYGIENE will be forwarded, post free, to all parts of the Kingdom, and to all countries within the Postal Union (including the United States, Canada, France, Germany, Belgium, Italy, Austria, Hungary, Spain, Portugal, Switzerland, the Netherlands, Russia, Denmark, Sweden, and Norway), on the following prepaid terms:—Twelve months, 6s. 6d.; six months, 3s. 6d. Subscription terms for Australia, India, the Cape, and all other parts of the world can be ascertained by inquiry at *HYGIENE* office.

ADVERTISERS are requested to bear in mind the greatly increased circulation of *HYGIENE*, with its weekly issue and reduced price. In addition to the large, regular circulation, many thousands of copies are distributed annually to sanitary officials, medical men, private addresses, public libraries, clubs, hotels, &c.

HYGIENE,

A SANITARY PAPER.

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PATENT ALIAS QUACK MEDICINES.*

By the EDITOR.

NO. XIII. (NEW SERIES).—BEECHAM'S PILLS.

AN old Scotch proverb runs as follows:—"There is but one good wife in the world, and every man thinks he has her." This is a curious proverb, which, like most of its class, admits of a double rendering; for, either good wives must be a rare commodity, or Scotch husbands must be far more uxorious and credulous than might be

expected of the residents of a northern clime. If a patent medicine man had the making of proverbs he would probably modify the Scotch saying into "There is but one remedy, and every quack asserts that he is the sole possessor of it." It could not, however, be said that he treasured it up, but that his chief aim was to part with it, even (as he would have his customers believe) at a most alarming sacrifice.

Take, as an example, the pills so widely advertised, and as equally loudly puffed by their manufacturer, Thomas Beecham. "Worth a guinea a box," he declares them to be, with such persevering pertinacity that one is almost compelled to imagine that Thomas Beecham is the very antithesis of his scriptural namesake, or that he had made the assertion so often that he has finally come to believe in it himself. Yet he is ready to sell any number of boxes at the ridiculously small sum of one shilling and three-halfpence, which trade discounts would further reduce to ninepence or less. We need not be too particular on this point, but will assume, for the sake of a simple calculation, that Beecham receives for every box that leaves his establishment the grand total of nine bronze pennies.

Just now we quoted a proverb, and the remarks made in the previous paragraph remind us of another, which lays down the commercial axiom that "a nimble ninepence is better than a slow shilling"; implying that it is better to do a quick turnover at small profits than a slow one showing a larger profit on each transaction. Yet, who ever heard of such a straining of this proverb as "a nimble ninepence is better than a slow guinea"? But

* Some of the articles constituting this series have already appeared in HYGIENE when published as a monthly magazine, and were reprinted in two volumes. But as one of these—Vol. I.—is out of print, we propose, at the request of many readers, to commence a new series, as much of the matter will doubtless be fresh to the great majority of the readers of HYGIENE in its altered form. New reports and analyses will appear from time to time. No. I. (May 13th) included:—Patent Medicines; Patent Medicine Law; Mattei's Electro-Homœopathic Remedies. No. II.—(May 20th), Clarke's Blood Mixture. No. III.—(May 27th), Clarke's Blood Mixture; Chlorodyne and other Opiates. No. IV.—(June 9th), Revalenta Arabica. No. V.—(June 16th), The History of Patent Medicines; The Sequah "Prairie Flower" and Oil. No. VI.—(June 23rd), Holloway's Pills and Ointment. No. VII. (June 30th), Correspondence about Holloway and Mattei. No. VIII. (July 7th), Concerning Advertised Testimonials of Clarke's Blood Mixture. No. IX.—(July 14th), Allen's World's Hair Restorer; Mexican Hair Restorer; Singleton's Golden Ointment for the Eyes; Rowland's Kalydor and Gowland's Lotion for the Skin; Mrs. Anna Ruppert's Skin Tonic; Mattei's Electricities. No. X.—(July 28th), Quack Advertisements and Testimonials; Mother Seigel's Syrup; Clarke's Blood Mixture and the late Dr. Swaine Taylor. No. XI.—(August 11th), Clarke's Blood Mixture; the Alleged Testimonial from the late Dr. Swaine Taylor, F.R.S.; the Obverse and the Reverse. No. XII.—(August 23rd), Quack Testimonials; Mother Seigel's Syrup; Clarke's Blood Mixture.

Mr. Beecham does not get even ninepence per box, for the sum of three halfpence vanishes in connection with the medicine stamp that adorns each box, and, as will be shown shortly, is the most costly part of the business.

Was such reckless trading ever known before? The only instance which can at all compare with it is that of the old apple-woman who was in the habit of telling her youthful customers that though she bought her stock of apples at the rate of three for a penny, she was in a position to retail them at the rate of four a penny, owing to the large scale upon which she conducted her purchases.

Perhaps the old dame repeated this assertion so frequently, with such "damnable iteration," as the poet said, that at last she came to believe it, just as Beecham believes—as we have given him possible credit for believing—that the pills manufactured at his place are worth twenty-one shillings a box.

Working out the foregoing figures, according to our unsophisticated mind, Beecham ought to be a millionaire to be able to stand against his continuous heavy losses, instead of being a millionaire, as we are told, through the sale of his pills.

	£	s.	d.
Value of box of pills (according to Beecham)	1	1	0
Amount received, say	0	0	9
Actual loss per box (according to Cocker)...	1	0	3

We do not profess to set conundrums in our pages, but we will give a guinea (box of Beecham's pills) to anyone who can produce a greater puzzle, a more complete paradox than this. The Gordian knot is too tightly drawn for us to attempt to undo it. We must, therefore, try to solve the mystery by calling in the aid of a skilled analyst, who will be able to tell us what these golden pellets—these "pearls of great value," "more precious than gold or silver," as Beecham modestly styles them in the printed circular accompanying each box—are composed of.

Analytical Laboratory,
Paddington, W. December 21.

DEAR SIR,—On December 15, I received from you a box of "Beecham's Patent Pills." The box was securely fastened with the unbroken label of the Inland Revenue Office.

I have now made a careful chemical and microscopical examination of the pills.

The mass of the pill material consists of ground ginger.

The active ingredient of the pill is aloes.

In my opinion the pills consist solely of aloes and ginger mixed up with soap.—Yours faithfully,

ALF. W. STOKES, F.C.S., F.I.C.
(Public Analyst).

Goodness gracious! gracious goodness! as our ancient applewoman ejaculated, one dark November

night, when a mischievous urchin discharged a specially spiteful cracker under her humble stall. We have, it seems, been discussing the "worth a guinea a box" question upon wrong data; and, seeing that Beecham's assertion about the value of his pills is completely upset by Mr. Stokes's analysis, we are bound to admit one fact—whatever else may be disproved—namely, that Beecham is not such a loser after all.

Further investigations demonstrate that the proximate proportions of the three ingredients named in Mr. Stokes's report are as follows:—Soap, 1 part; ginger, 2 parts; aloes, 2 parts. What a revelation to be made on St. Thomas's Day—not Thomas Beecham's! Well, if Beecham's scriptural namesake had had to do with Beecham's pills, considerable latitude for scepticism should have been allowed to him.

Soap, ginger, aloes. According to Beecham's assertive advertisements, some thirty or so of little pills, composed of three materials of about the cheapest possible character, are worth a guinea box! In other words, averaging thirty-six pills in a box—we are not particular as to one or two more or less, so long as we are not expected to swallow either them or the assertion—each pill may be calculated at 7d. We do not wish to be too critical, but we cannot help wondering where Beecham buys his soap, his ginger, and his aloes to bring his pills up to this average value. Tons of soap, tons of ginger, and tons of aloes made into tons of pills (otherwise "pearls of great value") ought to bring in something "more precious than gold or silver" of allegory, namely, "brass," as our Lancashire friends would say; for, as we reckon the results of such manufacture, if it were not for the patent medicine stamp, Beecham's pills would not cost even one penny to make a boxful. But the Inland Revenue stamp comes in useful, as it enables Beecham to call his nostrum "Patent Pills," and thus convey to customers the mysterious idea that they have some remarkable special properties.

And so they ought to have, if there is sufficient foundation for the high praises bestowed upon them by Beecham, in his circular, wrapped around every box of pills. They are suited to "females of all ages," says Beecham. This is a good sweep of the net, when it is considered that the feminine outnumbers the masculine portion of the community; but Beecham scorns to do things by halves, and consequently we were not surprised at finding the pills recommended, at page 5 of his circular, for "every class of disorders that afflict *all* ages and *both* sexes, from youth to old age." Here is a still wider sweep of the net, seeing that it takes in every human creature! Whatever else might be said of

Beecham, he cannot be accused of leaving too many chances for other patent medicine vendors.

After the statement just quoted, others seem, by comparison, mild. Still, we may refer to some. The pills "may be given to an infant, or to the aged and infirm with perfect safety;" they "give tone and energy to the muscles, and invigorate the whole nervous system;" they "produce sound and refreshing sleep;" they are "gude for sair een," as a Scotchman would say, or, as Beecham puts it, "the eyesight is strengthened beyond conception;" they destroy "the seeds or *symptoms**" (this is Beecham's spelling, not ours) "of direful diseases."

In all the affections he names large doses are recommended, and Beecham shows a very decided tendency towards liberality in this respect; he "giveth with a free hand," as becomes a philanthropist who is perpetually distributing guineas in return for pence. If Beecham sold his pills at the value he puts on them, a guinea a box, taking his pills would be like swallowing money. For persons "labouring under the influence of drink" he advises six or eight pills as a dose. Rough on those who overstep the bounds of moderation at any festive season, some of our readers may think; but then, if, as Shakespeare wrote, men "put an enemy in their mouths to steal away their brains," they must bear the consequences, and they are entitled to scant sympathy even should they take the entire contents of the box.

The quotations we have given are sufficient specimens of Beecham's modesty. Indeed, he is sometimes so carried away by his feelings that he appears to fancy himself, or to wish to convey to his customers, that he is a qualified doctor. We have heard people speak of Doctor Beecham's pills. A search through the Medical Register failed to discover the name; and a query addressed to the secretary of the Pharmaceutical Society elicited the answer that the name of Thomas Beecham does not appear either in the register of the members of that Society or in that of the Chemists and Druggists of Great Britain. The error may have arisen from Beecham's own utterances, like the following:—

"It falls to the lot of very few practitioners to go through the experience that I have had in this class of diseases," he writes in his pamphlets; with reference to certain affections, which, to say the least of the matter, it is not decent to discuss in a circular widely distributed amongst males and females, young and old; "though," he continues, "for many years I have not treated on this subject here, neither was it my intention to do so, but, as

**Hitching* of the breast or head is a "*symptom*" which Beecham mentions elsewhere,

everyone has a duty to perform, I feel that I shall not be doing my duty if I any longer withhold that advice and information which thousands of the human family stand in need of." Briefly, the advice, given by a man whose qualifications to give professional advice may be summed up in the short word *nil*, is to persevere in taking his triple concoction of soap, ginger, and common aloes—six pills as a dose—while the information this great (?) medical authority vouchsafes is, that "BEECHAM'S PILLS will be found to be a pearl of great value," and that "they will, as sure as water quenches thirst, search out," and, of course, cure one of the most terrible diseases to which human flesh is subject. Remarkable information, truly; but, in his anxiety to get people to swallow half a box of pills daily, he has omitted to tell us which of the three ingredients in the pills is the vaunted specific for venereal affections. Is it the soap, or the ginger, or the common aloes? The last-named is the active ingredient of Beecham's pills, just as it is of Sequah's Prairie Flower Mixture, of Holloway's pills, and of Mother Seigel's syrup. The ancients described four elements, namely, air, earth, water, and fire. If patent medicines had existed in those days aloes would possibly have been included as a fifth, so universally is it to be found in quack remedies.

ATHLETIC SPORTS IN RELATION TO PUBLIC HEALTH.

By HENRY HOOLE, M.D. (Lond.).
Author of "Science and Art of Training."

(Concluded from page 213).

ANY one who has watched the desperate struggle for mastery near the winning-post at Henley or at the meetings of the Amateur Athletic Association can testify to the severity of the strain upon the human organism. The men who pass unscathed through this are decidedly the highest product of the physical development of the present age. Their number is few. During those brief seconds that seem to the contender so long, the lungs are distended to their utmost by the deep and sustained breathing; the pressure thereby upon the contents of the chest is enormously increased, as shown by the bloodshot eyes, the swollen veins of the face and neck, and by the rapid pulsations of the heart, while the brain is conscious of nothing but the resolve to do or to die.

Should the athlete be unsound or untrained, something gives way—a valve of the heart, the wall of a blood-vessel, or the tissue or the lung; and in the

majority of such cases you may write twenty years off the life expectation of the sufferer.

A knowledge of the principal changes which occur in the body when the boy is growing into the man will best illustrate the risks of these dangerously superb athletic achievements. The so-called "period of puberty" extends from the age of fourteen to twenty. Up to sixteen the growth is rapid, and in these two years the lad gains four and three-quarter inches in height, three inches in girth of chest, and 28lbs. in his weight; after then the changes, although speedy, are at a slower rate, but the expansion of the chest is never in proportion to the increase in height. Throughout the whole stage of puberty the requirements of the bones and muscles are extreme,—requirements that the organs of digestion and assimilation cannot always adequately meet, although at no other period of life do they perform their functions so vigorously or so well. Owing to this diversion of all the available vital energy, and owing likewise to the insufficient growth of the chest, the brain, heart, and lungs are rather backward in development. The future mental and bodily calibre of the lad can therefore only be conjectured. The exhaustion from rapid growth is very great, and is especially evident at the age of sixteen, or if the lad be tall. Its signs, and those of immature condition are a low bodily temperature, feeble circulation—the hands and feet being habitually cold—ineptitude for mental or physical exertion, lassitude, headache, palpitation, and breathlessness. The nearer the age of twenty the less pronounced are these symptoms; nevertheless, during the entire period of puberty the bones remain only partially consolidated and the muscles only partially mature. These anatomical facts account for the distorted ribs, the round shoulders, and the weak loins of striplings; and, as the muscles of the limbs are more in advance of those of the trunk, prove the assertion "that growing boys are good runners but poor wrestlers."

It is needless to say great precautions must be taken to tide the boy over this critical phase of his life. He should be warmly clad, be circumspect in the use of cold baths, and avoid exposure. His diet should be ample, carefully selected, and contain a large proportion of animal food. Above all he should have plenty of rest, and refrain from arduous mental or bodily labour.

This delicacy of constitution is well known to army surgeons; one indeed has expressed the opinion that if recruits of eighteen be not discharged, they are

doomed to spend in hospital two to four of their succeeding eight years; while Napoleon I. stated that conscripts under twenty served but to strew the roadside and to fill the infirmaries.

The above remarks are sufficient, I think, to demonstrate the risks run by lads in severe competitions.

Upholders, interested or otherwise, of our modern sports may join issue upon the question of the health of athletes, and may quote the results of a few able inquirers into this matter. To my conscientious opponent I will point out how misleading in many ways are the conclusions of these writers. Their investigations were completed in the very infancy of this great expansion of athleticism; and, in addition, were restricted to what forms now an extremely small section of competitors—namely, the sons of members of the leisured class. Moreover, in most instances the athletes were over the age of twenty.

Let me examine more closely the life history and surroundings of this selected type. Born and brought up in pure country or seaside air, he inherits often a fine physique and a disposition for exercise. While every facility is given for gratifying this desire, his developing bodily powers are carefully nurtured; and then, at an age when most lads are earning their living, he enters a public school. Here he comes under the guidance of teachers who possess an excellent knowledge of manly games, and of a doctor skilled in the ailments of lads. Protected from unequal competition, mental labour restricted, well housed, and well fed, he is able to spend fifteen to twenty-five hours each week in the playground or on the river.

These conditions are naturally favourable to the development of large bones, powerful muscles, and exceptional stamina. Nor is the physical education yet completed. At eighteen or so he joins a University, and devotes, during the ensuing four years, a large portion of his time to bodily culture. In the critical years of puberty exercise has been taken with regularity, and often with moderation; so in perfect health he commences adult life, when the severe labour of modern sport and the variations of seasons can be borne, if not with pleasure, at least with comparative ease. His now more mature intellect protects him from the seductions of social or journalistic adulation, and his position places him outside the range of the manufacturer's attraction. The preparation for the world's struggle has been a costly one, but, if his after-life is to be that of the administrator, the leader or the teacher of men, it has been at least a rational

one. Early inculcated habits of discipline, of endurance, of self-reliance, and of hardihood will prove of inestimable service ; and other things being equal, the man may become the *fons et origo* of a superior race.

If, however, one section of society has benefitted by the gospel of physical education so recklessly preached, another and a much larger one has suffered. From the great lower middle class—the class which supplies ninety per cent. or more of the aspirants for athletic renown—let me select another type.

Born of city parents and reared in the atmosphere of crowded streets, the lad, even if he is fortunate enough to inherit breadth of frame or power of sinew, has few opportunities either for exercise or for the cultivation of his natural endowments. His childhood is passed in schools that know not the doctrine of muscular tuition, or where, owing to the great value of land, the playgrounds do not admit of the doctrine being properly expounded. From force of circumstances he enters business at an early age, and spends a large portion of the day in workshops, warehouses, or offices where much in the way of lighting and ventilation is to be desired. Nature, however, clamours for the working of his growing limbs, so this is sought in the late hours in the evening, when both mind and body are fatigued by the labours of the day. Should, however, his surroundings be more propitious or his sturdiness above the average, he probably becomes proficient in some pastime, and notoriety brings him within the sphere of attraction of those agencies which, in my opinion, have unduly stimulated our national games.

Can one be surprised if the unripened intellect of the lad failed to preserve him from such powerful influences ? An athlete *in esse* he becomes a champion or record-breaker *in posse*. Sport is an exacting mistress, and, as mentioned before, contests grow keener each year ; so, despite the sacrifice of time, of money, and often of health, he can barely keep within the third rank of competitors. He has no comfortable training-quarters at the seaside or in the country, no choice selection of food, and no skilled advisers. His practice must be taken where and when possible, and the day following the supreme effort finds him, not recruiting his strength at a health resort, but resuming his work in a narrow city street.

Long before the age of maturity is attained the young seeker after physical glory finds rivals pressing closer upon his heels, for, slightly altering the quotation—

“Competition hath a thousand sons, that one by one pursue.”

His vigour and skill, instead of increasing during the next few years as they should, are unmistakably on the wane. His reign is over ; it was but a brief and fitful one. Social attention and press flattery are diverted to other champions who have lowered his record ; admirers no longer minister to luxurious habits which they have engendered, and his own purse cannot supply them. Notoriety and adulation have made him impatient of advice or control. He despises the monotonous routine of commerce, and brings to it no acquired ability. Should he have escaped the accidents or the ailments incidental to his previous pursuits, his capital to begin the world with is a muscular body, a fallow brain, and a cabinet full of prizes. In the majority of cases, I regret to say, the social disadvantages have been too great, and some grave physical injury has resulted. This, if it does not lead to premature death, will grievously handicap him in the race for life and competence. It is not in this direction one may look for the mental and physical amelioration of our prosperity.

With pleasure I now turn to a brighter outcome of the popular taste for outdoor amusement. As far back as 1864 a committee met at Berlin to examine the subject of physical recreation in its relation to women. The result of the inquiry may be briefly summarised. Girls in large towns were found to be more liable than boys to disturbances of health ; while certain diseases, as weakness of the nervous and muscular systems, want of red blood, defective growth, curvature of the spine, and asthma, were in them ten times more common. It likewise traced the after-effects of these maladies both in the mother and in her offspring.

The cause of this, the committee pronounced to be the neglect of physical recreation between the ages of six and fifteen. To counteract the evil it recommended to the Government the adoption, in the education of young girls, of gymnastic and open-air games, swimming, and skating, but stipulated that the exercises should be methodical, proportionate to the age and strength of the child, not dangerous or indecent, and not too violent.

It augured from the use of these measures a higher standard of health, a reduction in the number of the before-mentioned diseases and deformities, an improved muscular system, more graceful movements, a better figure, and a more evenly balanced mind. Owing to the alteration of opinion in this country as to the recreation of young girls, the advice of this German committee has for the last thirty years been unwittingly followed. The soundness of its conclusions is

exemplified in the grace, the strength, and the health of the present generation of English women. Apart from the social improvement of all classes, it is easy to account for these good results. Class differences are not so markedly felt in the work of women as in men's; indeed, the advantage, if any, is probably on the side of the maiden of humbler life. The needs of the household require active help, and this muscular labour is calculated to make her robust and vigorous. Her duties are neither so exacting nor so responsible as those of her brother; she, therefore, thrives better on the plain, unvaried diet, and, besides, has greater facilities for taking exercise at more seasonable hours. The trying period of rapid growth comes on with her much earlier, and does not last so long; while a natural instinct in her parents leads them to shield her during this critical time from either mental or bodily excess. Again, women's pastimes have been more slowly evolved. Their selection is still very limited; and neither social favour nor personal taste inclines towards those requiring violent exertion. Her friends, up to the present, find no gratification in seeing her chest bedecked with medals; clubs are not eager to secure her services; she is not subordinate to the interests of vested capital; and, if one omits lawn-tennis, she has not yet been infected with the fever of competition. Moderate indulgence and sensible emulation have given to the modern Atalanta a graceful form, a sound constitution, and a healthy mental tone—incalculable benefits, as she will discover when the responsibilities of wife and mother fall to her share. Great as the advantages of physical culture have been to the girl, there is still much more to be done. The prejudice against her sharing in any of the outdoor recreations is not wholly removed, and she has yet to be protected from those evils which have already overtaken her brother.

No one, I feel sure, will deny that all forms of bodily address have reached a high degree of excellence, and that superior athleticism, like many other transcendent things, has now become a luxury.

The athlete of the future will have seriously to consider the nature of the task before him, if he desires in safety to equal or surpass the exploits of the present generation. From what section of society he will come is a matter of conjecture. For my own part, I believe that favourable conditions of life must tell, and that we must look to the narrow ranks of the wealthy class to furnish the champion.

Far, however, from further stimulating the future evolution of athletic sports, I would urge

measures to impede it, and to discountenance competitions. With this view I make the following suggestions to our leading athletic clubs and associations. Let there be no great discrepancy in the ages of your active members; abolish competitions for challenge cups, and for youths under the age of twenty; do not favour any eccentric departures from legitimate pastimes; let your prizes approach in simplicity and cost the olive garland of the Greeks; and, in the interest of sport, make more rigid the line of demarcation between amateur and professional athleticism. To the latter relegate costly prizes, gold and silver medals, championships, the making and breaking of records, erratic diversions, and the furtherance of the interest of sporting industries.

I would likewise suggest the appointment of a Commission similar to the one held in Berlin, to investigate the whole question of our national recreations, and to discover and make widely known what in them is good and what is evil.

Finally, to every aspirant to physical glory I would say—Ascertain, ere you descend into the public arena, if freed from hereditary taint of disease, if sound vital organs, and exceptional physique, be your good hap; then, fortunate man, learn a few principles of health and exercise, and you will win laurels in this bloodless field with advantage to yourself and with benefit to your kind.

THE INFLUENCE OF HIGH BIRTH RATES ON THE PRODUCTION OF PREMATURE DEATH.

By CHARLES R. DRYSDALE, M.D., Senior Physician
Metropolitan Hospital, London.

ALL students of Hygiene are aware that high birth-rates in Europe are usually accompanied by a high rate of mortality. Where emigration is very rapid there exist some exceptions to this rule, especially in Great Britain, where the birth-rate is high and the mortality comparatively low. But in other European countries, such as Russia, Italy, Spain, Germany, and France, the occurrence of high birth-rates is always followed by high mortality amongst the poorest classes. As early as 1832 Dr. Villermé, of Paris, showed that the mortality in the different quarters of Paris was greatest wherever poverty was strongly marked; and Dr. Lombard (*Annales d'Hygiène Publique*, 1835) remarked that the duration of life was shortened in proportion as we pass from the well-to-do

classes to the poorer classes. He said, in accounting for this: "Firstly, there is a diminution of physical suffering by means of a sufficient food supply, and a sufficient protection against atmospheric vicissitudes among the well-to-do classes; secondly, their liberal education detaches them from gross excess, and leads them to follow a life in consonance with the precepts of hygiene."

Villermé mentioned long ago that in Paris the mortality of wealthy persons between 40 and 50 years of age was 8·3 per 1,000, against 18·3 per 1,000 of persons of similar age among the poorer classes; and that between 1817 and 1836 there died 1 in 15 in the Twelfth Arrondissement (a poor quarter) against 1 in 65 in the rich Second Arrondissement. Sir E. Chadwick, in one of his pamphlets, mentions that there are streets in London, inhabited by the wealthy, where the mortality does not exceed 11 in 1,000 inhabitants annually; and that there are slums where the annual mortality occasionally rises to 50 per 1,000. Mr. Charles Ansell, actuary of the National Insurance Company of London, drew up some statistics concerning 41,000 children of the well-to-do classes in England which showed that 8 per cent. only of such children died in the first year of life; whilst in certain poor quarters the annual mortality of children of the indigent class rose to 33 per 1,000 in their first year. And he showed that whereas, among the rich classes in England, 80,000 survivors of 100,000 born attained the age of 21, among the general population only 66,000 survived to that age. In 1873 Mr. Ansell calculated that 368,000 died in England and Wales under the age of sixty, only 226,000 of whom would have died had they been in more favourable pecuniary circumstances. So that poverty was the cause of 142,000 deaths in England and Wales that year.

It does not seem necessary, however, that the standard of existence should be very high in order to secure such advantages to the citizen, for in one colony of New Zealand, in a climate much like our own, official statistics show a very low mortality of about 12 per 1,000, with a birth-rate of about 36 per 1,000. The wages of the working classes are said to be eight shillings per day of eight hours, and the price of beef and mutton is very low. In Europe such a birth-rate would certainly produce a high death-rate; but in New Zealand food is so cheap that there is no chronic starvation such as we are accustomed to see in Europe. Thus in France, in 1886, the birth-rate was 23·8, and the death-rate 23·5; but in Germany there was a birth-

rate of 38·4 and death-rate of 27 per 1,000 inhabitants annually.

Dr. Thouvenin, in an article upon the influence of different callings on health, remarks that, if we exclude a few trades, such as cotton-beating, silkworm culture, knife-grinding, lead-working, and one or two others, the health of the workman does not suffer directly from his occupation. In the majority of cases the deterioration in the workman's health arises from hereditary tuberculosis, from insufficient shelter in his home, excessive work in youth, poor diet, and drink. All these are but poverty under another name. It appears that the poor suffer far more frequently than the rich from tuberculous diseases, and that 68 per 1,000 of the rich die of these, against 230 per 1,000 amongst the poor. The overcrowding of the dwellings of the poorer classes doubtless is the chief cause of this phenomenon. In 1884 Dr. Grimshaw, in a paper read before the Sanitary Association, showed that the mortality among the well-to-do classes in Dublin was 19·8, against 36·8 among the wage-earning class in that city. The birth-rate of the wage-earning classes was high; and the number of children under the age of five years in the rich quarter was 7 per cent., against 15 per cent. in the wage-earning classes. Hence the annual mortality of such children was 21·8 per thousand in the rich classes, against 107 per 1,000 in the poor.

In an article (in the *Revue des Deux Mondes*, April 15, 1893), *La Vie et les Salaires à Paris*, by M. Haussonville, there are some statistics from the *Annuaire Statistique de la Ville de Paris* concerning the number of children in each quarter of Paris under the age of five years. In the Thirteenth Arrondissement there were 957 such children in 10,000 inhabitants. This is one of the poorest quarters of Paris, and contains one indigent person in eight inhabitants. The rich quarter, Champs Elysées, contained only 397 such children in 10,000 inhabitants; and the Opera 452. M. Haussonville compares the number of children of 1,000 married women in different countries. One thousand such women in France give birth to 175 children, against 275 in Prussia and 123 in Paris. In that city the figure in the Eleventh Arrondissement is 86, and 73 per 1,000 in the Eighth, which are two of the rich quarters of Paris, against 180 in the poor Thirteenth, 164 in the Nineteenth, and 160 in Belleville, another very indigent quarter. The same facts hold good in comparing the different districts of London. M. de Haussonville found that the families of the poor in Paris are, on an average, thrice as large as those of the rich; and Dr. Lutaud has lately shown that

100 practitioners of medicine in Paris have only 150 children, or less than two children to a family; whilst among the out-patients of the Metropolitan Hospital in London, I found that 100 married women had had about 720 children.

If these facts were but well known, it would soon be admitted that the principal cause of premature death in European civilised States is the improvident way in which the poorer classes act with regard to the function of reproduction. A great English economist, Mr. J. S. Mill, has justly remarked that little improvement can be expected in morality (happiness) until the producing of large families is regarded in the same light as drunkenness.

A REPORT ON "SANITAS" PREPARATIONS AND APPLIANCES.

(Comprising a large number of Experiments undertaken to ascertain their Disinfecting and Germicidal Power.)

By A. B. GRIFFITHS, Ph.D., F.R.S. (Edin.), F.C.S.
(Member of the Chemical Societies of Paris and St. Petersburg, author of "A Manual of Bacteriology," "Researches on Micro-Organisms," &c.)

(Concluded from page 219.)

THIRD SERIES OF EXPERIMENTS.

The *vapour* of "Sanitas Oil" has a most destructive action on pathogenic microbes. A flask containing the "Oil" was placed in a water bath heated to 100° C., and the vapour passed into cultivation tubes containing various microbes. (The figure illustrates the apparatus used.)

By using this apparatus the vapour of "Sanitas Oil" destroyed—

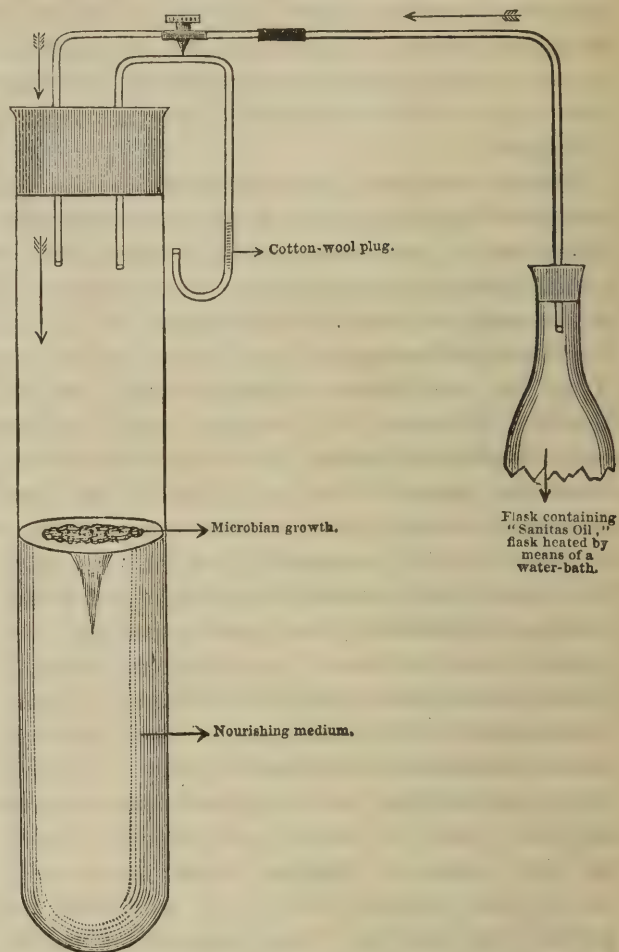
- | | | |
|--|-----|--------------------------|
| (a) <i>Bacillus tuberculosis</i> | ... | in from 7 to 10 minutes. |
| (b) <i>Bacillus diphtheriæ</i> | ... | " 5 to 8 " |
| (c) <i>Bacillus typhosus</i> | ... | " 6 to 8 " |
| (d) <i>Bacillus mallei</i> | ... | " 7 to 10 " |
| (e) <i>Spirillum cholerae Asiaticæ</i> | ... | " 10 to 15 " |
| (f) <i>Micrococcus scarlatinæ</i> | ... | " 4 to 6 " |

There is no doubt that the vapour of "Sanitas Oil" is a powerful germicide; and the inhalation of the vapour of the "Oil" would be most beneficial in the treatment of diphtheria, phthisis, and other diseases of the throat and lungs.

FOURTH SERIES OF EXPERIMENTS.

These experiments were performed in order to ascertain the *fumigating* power of the vapour of "Sanitas Oil" in ordinary dwelling rooms. The number of

microbes present in three gallons (fifteen litres) of air was ascertained by Hesse's well-known method. The figures in the following table represent the average



number of microbes (colonies) in three gallons of air *before* and *after* fumigating with the vapour of "Sanitas Oil":—

Number of Experiment.	Before Fumigating.	After Fumigating.		
		5 Minutes.	12 Minutes.	30 Minutes.
I.	125	71	12	0
II.	110	68	10	0
III.	118	60	9	3
IV.	106	58	14	0

The fumigator recommended by the Sanitas Company was used in the experiments. It is a most efficient apparatus, and should be used in every hospital and in all sick rooms.

FIFTH SERIES OF EXPERIMENTS.

The object of these experiments was to ascertain the germicidal power of "SANITAS FLUID" when *sprayed* into ordinary dwelling rooms. As in the previous

experiments, the number of microbes present in three gallons of air was ascertained by Hesse's method (see Griffiths's "Manual of Bacteriology," pp. 265-267). The figures in the following table represent the average number of microbes (colonies) in three gallons of air, *before* and *after* spraying with "Sanitas Fluid":—

Number of Experiment.	Before Spraying.	After Spraying.		
		15 Minutes.	30 Minutes.	55 Minutes.
I.	152	89	31	0
II.	140	92	29	3
III.	110	78	20	2
IV.	169	85	18	0
V.	122	83	30	0
VI.	109	63	27	0

The spray-producers sold by the Sanitas Company were used in the experiments. These experiments prove the high value of "Sanitas Fluid" as a disinfectant or germicide.

SIXTH SERIES OF EXPERIMENTS.

These experiments were performed in order to ascertain the action of "SANITAS EMULSION" (= 50 % of "Sanitas Oil") on the microbes in certain waters. The "Sanitas Emulsion" was mixed with an equal volume of sterilised water; consequently the mixture contained 25 per cent. of "Oil." The number of microbes present in 1 cc. of the sample of water was ascertained by Koch's method, or the plate-cultivation process. The figures in the following table represent the average number of microbes (colonies) in each cc. of the sample of water *before* and *after* adding the "Sanitas Emulsion" (strength = 25 %) :—

Water from	Before.	After adding	
		0.5 cc. of "Emulsion."	1 cc. of "Emulsion."
River Thames.....	11,200	60	0
„ Lea	7,892	41	0
„ Seine.....	15,630	79	2

These experiments prove the high disinfecting power of the "Sanitas Emulsion."

SEVENTH SERIES OF EXPERIMENTS.

I have extracted a number of highly poisonous ptomaines, animal alkaloids, or toxines, from urine in certain infectious diseases (see Griffiths' papers in the *Comptes Rendus de l'Académie des Sciences* (Paris), *tomes* 113-115); and several of these ptomaines have also been obtained from pure cultivation of the microbes which give rise to certain diseases.

This series of experiments was undertaken to ascertain the action of "Sanitas Oil" and "Sanitas Fluid" on these poisonous ptomaines. It is essential in the treatment of infectious diseases, as pointed out in the opening remarks, that not only the pathogenic microbes should be destroyed, but also the poisonous substances (ptomaines) which they indirectly produce.

SCARLATININE ($C_5 H_{12} NO_4$) is the poisonous ptomaine of scarlet fever, as it is always present in the urine of patients suffering from that disease; and it is also produced in pure cultivations of *Micrococcus scarlatinæ*. One-tenth of a cubic centimetre of "Sanitas Oil" [completely destroyed 0.76 gramme of scarlatinine; the products of oxidation, being non-poisonous, may readily be taken into the system with impunity.

DIPHATHERINE ($C_{14} H_{17} N_2 O_6$) is the ptomaine of diphtheria. It is present in the urine of patients suffering from that disease, and is also produced in pure cultivations of *Bacillus diphtheriæ*. It is very poisonous, but is completely destroyed and rendered inert by the action of "Sanitas Oil" and "Sanitas Fluid."

PROPYLGLYCOCYAMINE ($C_6 H_{13} N_3 O_2$) is the ptomaine of parotitis (mumps). It is very poisonous, and when administered to a cat it produced nervous excitement, cessation of the salivary flow, convulsions, and death. But the action of "Sanitas Oil" and "Sanitas Fluid" rendered it inert.

GLYCOCYAMIDINE ($C_3 H_5 N_3 O$) is the ptomaine of measles. It is poisonous, and when administered to animals it causes death in from twenty-four to thirty-six hours. "Sanitas Oil" and "Sanitas Fluid" both destroy this ptomaine, and the products formed, due to the action of these powerful oxidising agents, are perfectly harmless.

GLANDERS.—The ptomaine ($C_{15} H_{10} N_2 O_6$) of this disease is very poisonous. A solution of it injected under the skin of a rabbit produced an abscess at the point of the injection, nodules in the lungs and other organs, and finally death. But this ptomaine (which is also produced by the microbe of glanders in pure cultivation) is destroyed or oxidised by "Sanitas Oil" and "Sanitas Fluid." There is no doubt that "Sanitas" preparations would be of the highest value in the treatment of glanders and other infectious diseases.

PNEUMONIA.—The poisonous ptomaine ($C_{20} H_{26} N_2 O_3$) of pneumonia is also destroyed and rendered inert by the action of "Sanitas Oil" and "Sanitas Fluid."

ERYSIPELINE ($C_{11} H_{13} NO_3$).—This ptomaine of erysipelas is very poisonous, producing high fever and

death within eighteen hours. It is readily destroyed by the "Sanitas preparations."

PUERPERALINE ($C_{22}H_{19}NO_2$) is the poisonous ptomaine of puerperal fever. "Sanitas Oil" and "Sanitas Fluid" completely destroy this ptomaine. Pasteur states that "the antiseptic treatment ought to be infallible in preventing puerperal fever from declaring itself. The employment of carbolic acid may be of great service, but its odour, and often the melancholy association of ideas which it awakens, might render it unsuitable for women in labour." There is, however, not the same objection to "Sanitas Fluid," which I can conscientiously recommend for the purpose. It not only destroys the microbes of disease, but also the poisonous ptomaines, which are so readily absorbed into the system.

In each of the above cases the innoxious nature of the products formed by the action of the "Sanitas" preparations on the ptomaines was proved by experiments on animals; such experiments were performed abroad.

CONCLUDING REMARKS.

There is no doubt that "Sanitas Oil" and "Sanitas Fluid" are most powerful disinfectants; consequently they should not only be used for disinfecting rooms, hospitals, barracks, prisons, &c., but also employed in the treatment of infectious diseases—such as cholera, diphtheria, scarlet fever, measles, glanders, typhoid fever, tuberculosis, puerperal fever, &c.

My investigations prove that the "Sanitas" preparations are most valuable disinfectants or germicides.

EARLY RISING.

"WHOEVER has tasted the breath of the morning knows that the most invigorating and most delightful hours of the day are commonly spent in bed, though it is the evident intention of Nature that we should enjoy and profit thereby. Children awake early, and would be up and stirring long before the arrangements of the family permit them to use their limbs. We are thus broken in from childhood to an injurious habit; that habit might be shaken off with more ease than it was first imposed. We rise with the sun at Christmas; it were but continuing to do so till the middle of April, and, without any perceptible change, we should find ourselves then rising at five o'clock, at which hour we might continue till September, and then accommodate ourselves again to the change of season." —*Southey*.

We fear that those of our readers who stand in need of friendly admonition and advice on this point will

forget all about their good resolutions if they wait four months before beginning to put them into practice, and we would recommend an earlier start on the way to early rising.

A good plan would be to make a point of getting up ten minutes sooner every day for, say, a fortnight. By the end of that period they would find themselves, just as Southey says, without any perceptible change in their arrangements, rising more than two hours earlier than was their previous custom. And what is the real significance of two hours' earlier rising? Why that in a single year there is a gain equivalent to seventy-three working days of ten hours each. Carrying this calculation still further, it follows that a person who habitually rises two hours sooner than another would in fifty years gain the advantage over the other of ten years' time, each year comprising three hundred and sixty-five days of ten hours, taken from the best part of the day.

We fancy that we hear some of our readers exclaiming that they cannot get up, and that, though they do go to sleep again, even after that they do not feel sufficiently rested. On this point we would quote one of the most sensible medical authorities that ever lived, John Abernethy. "I always," he wrote in his "Observations," "caution patients against sleeping too much; waking from sleep indicates that the bodily powers are refreshed. Many persons upon first waking feel alert and disposed to rise, when upon taking a second sleep they become lethargic, can scarcely be awakened, and feel oppressed and indisposed to exertion for some time after they have risen." In this connection we may remark that, amongst all our young friends who assert their inability to rise early, we do not know one who cannot get up at any time, however early, for a day's pleasure-trip.

The beneficial effects of early rising upon the general health must not be lost sight of. Increased physical and mental vigour, better powers of digestion, and a clearer eye, all bear constant testimony to the advantages of early rising, bringing in its train, as it must necessarily do, early hours of retiring to rest.

Early to bed and early to rise
Make a man healthy, wealthy, and wise,

is an axiom which is not destined to drop into the limbo of fallacious proverbs.

Anna Ruppert, the skin specialist, whose pretensions we exposed in *HYGIENE* for July 14, has lately got into further notoriety at the Dublin Police Court, where a considerable fine was imposed upon her. The evidence given fully bore out all that we had stated in our article.

COOKERY: ITS HYGIENIC AND SOCIAL IMPORTANCE.

FROM the earliest days of mankind the questions of food and its preparation must necessarily have constituted a subject of constant interest, and it is probable that our remote ancestors, the ancient Britons, though they lived to a great extent on roots and acorns, were particular at any rate as to the succulence of the former and the tenderness of the latter; while the fortunate individual who first hit upon the culinary improvements of baking and boiling their simple and previously raw food, doubtless received the highest honours which it was in the power of the tribe to award.

As to the present day, it is a well-recognised axiom that "civilised man cannot live without cooks." True, indeed; but the art of cooking is shamefully neglected amongst the modern Britons, giving rise to an incalculable amount of domestic discomfort and waste. The dietary of the average middle-class English family is often monotonous to a degree, and prejudicial to health, through the almost slavish adherence to certain articles of food and certain limitations in the ways of cooking them. Sir Henry Thompson, in his book on "Food and Feeding," refers to this fact in strong and truthful language: "Joints of beef and mutton, of which we all know the very shape and changeless odours, follow each other with unvarying precision, six roast to one boiled, and have done so ever since the average middle-class Englishman began to keep house some five-and-twenty years ago." With ample means at his disposal, he gets no change from this wearying round of animal food, of which, proudly impressed with the plainness of his food, he partakes in what is, as a matter of fact, an excessive quantity. Hereditary habit is in a great measure accountable for this failing; but John Bull's spouse must not be held altogether blameless. It often happens that young wives of the middle class are lamentably ignorant of the ordinary rudiments of diet and cookery; and, as a consequence, they, like their parents before them, drift into the easy, if monotonous, way of ordering daily some joint or other for the principal meal to be roasted—or rather, baked, for very little meat is cooked now before an open fire—or boiled, six joints prepared for table by one method and a seventh by the other, as Sir Henry Thompson puts it. We could tell here many extraordinary anecdotes of young married ladies' ignorance concerning food and its preparation, but our aim is to effect future improvements, and not to dwell upon past errors. In one instance a lady, just commencing house-

keeping on her own account, having heard her husband say that he was partial to sweetbreads, asked him, when leaving home for the City, to call in at the confectioner's on his way to the station and order half-a-dozen; on another occasion, a newly-married lady, who had treated her husband to legs of mutton daily for a whole fortnight, being mildly reminded by her servant that "Master might like a change of joint," observed, "Oh, perhaps so. Then order a leg of beef when the butcher comes."

Mrs. Greenup, one of the examiners at the Kensington School of Cookery, in an interesting article which appeared in our columns some time ago, pointed out that the necessity of teaching girls how to cook is not limited, as many seem to think, to the class from which domestic servants are taken. Those who go into service have some chance of learning household duties; but how about the hundreds of thousands who, up to the time of their marriage, are engaged in various handicrafts giving females employment, or in shops? When they acquire homes of their own, they have not the faintest idea of how to manage them, or how to prepare a meal. Here is an illustrative anecdote:—A prepossessing young shopwoman, who had been for a number of years in the same situation, married a respectable clerk. A lady customer, whom she had frequently attended to in the shop, took a friendly interest in her, and after a little time called to see how she was getting on in her new home. The lady was not less sorry than astonished at hearing the young wife tearfully relate her difficulties. "John," she said, "is very fond of fish, and last evening he brought home a nice codfish. I did not know any other way of cooking it, so I *hung it on the spit and let it roast*. John made a dreadful fuss at dinner time to-day because the fish did not taste right. Oh! how I wish that I had been taught cooking when I was a girl.'

Cookery manuals of all sizes and kinds are to be had, of course, but unfortunately the great majority of these are either too complex in the directions given for preparing various dishes, or the ingredients are beyond the reach of most incomes. The bewildered housewife is told to take a portion of this ingredient, a piece of that, and so on; while, when we come to the concoction of sauces with which the dishes are to be accompanied, it would appal a domestic economist equally with a teetotaler to read the reckless manner in which Burgundy, Madeira, and other vintages are called into requisition.

After all, however, the best kind of instruction is by object lessons, not by books—practical, not merely theoretical. We therefore hail with satisfaction the announcement that the Seventh Universal Cookery and Food Exhibition will be held next October (24th to 28th

inclusive) at the Portman Rooms, Baker-street, London, W. Those of our readers who have visited previous similar exhibitions similarly organised need no assurance from us as to their interesting character. To those who have not, we give the advice not to miss the coming exhibition, which, by the way, will have the advantage of the experienced services, as honorary secretary, of Mr. C. H. Senn, who has successfully acted in that capacity on several previous occasions.

We have often advocated in these columns that if cookery and domestic economy were more widely taught (a suggestion which many County Councils have adopted in arranging technical courses of lectures) more permanent good would be done to the cause of temperance than by all the teetotal lectures that were ever delivered. The physique and working power of our population would, at the same time, show a vast improvement. In short, we should become a healthier, happier, and wealthier race.

W. A.

REVIEWS AND NOTICES OF BOOKS.

The Prevention of Preventable Disease. By Sir Spencer Wells, Bart., Surgeon to the Queen's Household. Glasgow: Alexander Macdougall. 1893.

Sir Spencer Wells works with an energy which ought to serve as a good example to all sanitarians. One might write of him, "Age does not wither, nor custom stale, his infinite variety." There are few public functions of a useful nature at which he is not to be found rendering assistance, while his contributions to sanitary literature would alone stamp him as a busy man, full of knowledge and experience, yet more eager in research than many who have not attained to half his years.

The pamphlet under notice contains the substance of an address delivered, by request, before a large professional audience at Glasgow. Referring to the circumstance that, in the presidential address at the opening of the International Congress of Hygiene, the question was naturally suggested, *apropos* of the term "preventable diseases," "If preventable, why not prevented?" Sir Spencer deals in his usual felicitous and clear style with the subject of prevention. He shows the immense diminution in the mortality from puerperal fever—formerly the great scourge and opprobrium of maternity hospitals—since the introduction of antiseptic treatment and the adoption of general sanitary precautions.

Speaking of antiseptics, Sir Spencer points out the desirability both of efficiently using the antiseptic and of

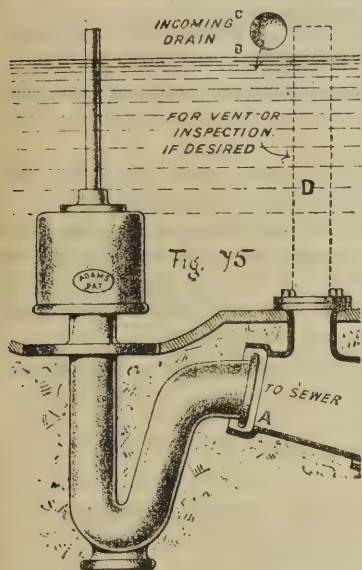
varying the agent according to the requirements of the case. Many years ago Sir Spencer Wells asked M. Pasteur which he thought to be the best general disinfectant in the treatment of diseased conditions; to which Pasteur replied that this must depend on the disease. More recently Dr. Ruffer, writing on this important matter, made the following remarks:—"To limit the spread of infectious disease it is necessary that we should have full and accurate knowledge of the disinfecting power of every disinfecting agent on every micro-organism. How, for instance, are we to stop the spread of phthisis if we do not know what strength of disinfecting fluid will kill the specific bacillus? How are we to arrest the spread of typhoid if we do not know how much sublimate or other disinfecting agent will kill the bacillus of typhoid? It is a far more complicated business than most people think or have any idea of. . . . We must remember that every disinfectant will not act in the same dose on every organism, and, although this fact at first appears to make the task a more difficult and complicated one, yet it opens up the hope that a substance may be found for each micro-organism which may prove fatal in small doses to that microbe without producing any symptoms in the patient." Herein lies the basis of much intelligent, patient research, forming a wide field of practical investigation for the bacteriologist.

Sir Spencer Wells throws out the suggestion that, instead of three institutions in London devoted to bacteriology, viz., the Society for the Advancement of Medical Science by Research, the Institute of Preventive Medicine, and the College of State Medicine, it would be far better to unite them in one powerful association, thus giving us a real national institution of experimental research, in place of minimising the opportunities of concentrated action. We cordially agree with him, particularly as several instances have come to our knowledge of the frittering of funds in payment for the services of men who would be dispensed with on the establishment of a central and ruly national association.

In the latter part of this pamphlet Sir Spencer Wells deals with the important question, How should we dispose of the dead body in cases of death from preventable disease? All of our readers who have seen Sir Spencer's articles on cholera in *HYGIENE* for July will be prepared with the answer, "By cremation." Whatever may be said against this method of the disposal of the dead in ordinary cases of death, no prejudice or argument can be strong enough to blind one to the great benefit which must arise to public health from the cremation of the bodies of all persons dying from infectious disease.

HYGIENIC NOTICE.

An Automatic Sewer Flushing Valve.—Messrs. Adams and Co., sanitary and hydraulic engineers, have introduced



an important improvement in this respect. Hitherto the vent pipe and cap employed, although guaranteeing certainty of action, were liable to the drawback that it was necessary to perfection for a feed of water to discharge upon both the vent and the cap, sometimes impossible, often difficult to manage. The new syphon valve, of which we give an illustration, is so arranged that the vent pipe is employed as an air relief only, and

that the feed may enter the tank at any level or position. These flushing syphons are reliable, and keep in good working order.

DIETETIC NOTICE.

Essence of Beef.—We have recently received from the Bovril Company a sample of their well-known Essence of Beef. The novelty of this specimen is that it is put up in a tin lined with porcelain, so as to prevent contact of the meat essence with the metal. This is a decided improvement on the ordinary method of putting up such articles, and must commend itself to everyone who gives consideration to the desirability of preserving them free from metallic contamination. We may mention that this Essence of Beef, or Meat Jelly, does not contain a high percentage of meat albumen, like Bovril does, but it is a valuable restorative and stimulant in all cases of physical or nervous exhaustion, especially when other foods are not readily taken.

The Sanitary Institute.—We have been requested to announce that the next course of lectures and demonstrations for sanitary officers will commence on October 3 with a lecture on ventilation, warming, and lighting by Sir Douglas Galton, K.C.B., F.R.S., and be continued on Tuesdays and Fridays throughout October and November, the lecturers being well-known men in their several departments of sanitary science. In addition to the course of lectures, a number of visits to various places of sanitary interest have been arranged, thus insuring a series of valuable object lessons. The fee for the whole course will only be one guinea; and in the case of surveyors and inspectors holding office the charge will be further reduced to half of that sum.

NEWS AND NOTES.

Cholera.—We have received an official communication issued from the Local Government Board to the effect that the statement which has appeared in some of the daily papers as to the occurrence of seven cases of cholera in London this summer is incorrect. These seven cases were all intercepted at different ports; the first being in the Tyne port on June 25, and the two last on board vessels reaching the Nore and Grimsby early in August. Notwithstanding the able manner in which this dread visitant has been kept at bay, it behoves all not to allow themselves to be lulled into a sense of false security; while any hygienic measures which may be adopted in the interests of public health must not be regarded as thrown away, even if cholera should not obtain a footing on English soil. One fact is very evident, viz., that cholera is considerably on the increase in various parts of the Continent—much more, indeed, in some localities than the authorities are willing to admit. In such cases the greatest folly that officials can be guilty of is attempt at concealment of the real state of things; a folly often amounting to a crime, owing to the mischief which may result from keeping people in ignorance of the condition of affairs.

Oariferous Oxted.—Under this heading the *Surrey Mirror*, published at Redhill, has exposed a very serious state of things in what should be one of the healthiest, as it is one of the prettiest, districts of that part of Surrey in which it is situated. Diphtheria has been prevalent in an epidemic form, having carried off several children, and a local flower show had to be abandoned recently owing to the amount of epidemic sickness. The drinking water of the village has been repeatedly examined, and found unfit for use through its coming from contaminated surface wells. The cesspit system prevails; there is no proper attempt at drainage; the local river is grossly polluted; and needful sanitary measures have been utterly neglected by the authorities of the Godstone Rural Sanitary District, of which Oxted forms a part. As an indication of the unfitness of the local authorities, we may instance the fact that they have refused to take heed of the repeated warnings of the County Medical Officer of Health and of Dr. Oldman, their own medical officer, even to the extent of refusing to adopt the Notification of Diseases Act. We congratulate the *Surrey Mirror* on its public-spirited and outspoken denunciation of such shameful remissness.

Richmond Sanitation.—A lively correspondence on this subject, to which the Editor of *HYGIENE* has contributed as a resident in the district, is appearing in the *Surrey Comet* (Kingston-on-Thames). Instead of properly disposing of their town refuse, the authorities have been paying agriculturists largely to cart it away and spread it on fields adjoining highways and near houses—of course miles away from Richmond—thus constituting a serious public nuisance, as well as being detrimental to health.

Coming Events cast their Shadows before them.—The Charity Commissioners have just drafted a scheme for the better administration of the numerous local charities of Hampton, Middlesex. One clause provides that the representative trustees for the future management of the charities shall be appointed by the Parish Council, when that body shall have been constituted.

The Army Medical Department have only just issued their annual report for 1891, by far too long a delay. It contains the satisfactory information, in these days of young recruits, that the number of men invalided as "medically unfit for further service" was considerably below the average for the previous ten years, being only 1,466. The total number of men serving in the army at home and abroad, in 1891, was 196,270. Of these, 66,000 were in India, and 99,000 in the United Kingdom.

Tight Collars and Defective Vision.—Dr. Foster, Professor of Ophthalmology in the University of Breslau, has reported that in no fewer than three hundred cases which have come under his notice the eyesight was affected by the pressure upon the muscles of the neck, and the consequent disturbance of the circulation, caused by wearing collars that were too small.

Brick Tea.—The low price of tea appears to have driven tablet—or, as it was usually called, consolidated—tea out of the English market. Large quantities of brick tea, *i.e.*, fine quality tea dust compressed into small cakes, are carried overland from China into Russia, its chief recommendations being its portability and non-liability to deterioration. More than a million pounds were thus exported from China last year.

ANSWERS TO CORRESPONDENTS.

W. G. (Edinburgh).—Thanks for your encouraging letter. We have handed your subscription to our publisher. If every medical man who admires our outspoken attacks on quacks and quackery would show this approval in the same practical manner, *viz.*, by entering his name as a subscriber, it would give us additional strength and energy. We have two actions threatened for publishing analyses and reports of well-known patent medicines, and it requires the "sinews of war" to fight against the plethoric purses of quacks.

P. B. M.—Let us see the copy of engineer's report.

An Army Surgeon.—We shall be glad to hear from you again.

E. M. S.—The book on Epidemics to which you refer is by the Hon. Rollo Russell, published by Mr. Stanford, Charing-cross.

Mons. Laminat (Brussels).—Much obliged for letter; always pleased to hear from Continental friends.

Mr. Richardson.—It seems to us that you have not approached the local sanitary authority in a sufficiently conciliatory spirit.

Mr. Brien (Dublin).—Consult Dr. Wilson's handbook.

J. W.—The matter shall receive early attention.

H. M. (Derby).—Send the MS. to our publishers, who could give an estimate for printing free, and have excellent facilities for publishing your pamphlet.

Mr. Ashworth.—See article on Anthrax, or Malignant Pustule, in *HYGIENE* for June 23.

A Sanitarian.—You can have *HYGIENE* sent post free, every Friday, for twelve months, for 6s. 6d., beginning from any date.

M. L.—The purest and softest kinds of water are those from the green sand and new red sandstone formation.

Alpha.—As it will be your first special report, it is the more desirable that you should be quite correct on the important point named. If you will send us a draft copy, we will look through it, and return it next week with any suggestions that may occur to us.

Captain Williams will have a private reply on sending his complete address.

EDITORIAL AND PUBLISHING NOTICES.

EDITORIAL.—The Editor begs to express his thanks to numerous correspondents, and to state that he will be pleased to receive any articles or correspondence coming within the scope of *HYGIENE*, reports of medical officers of health, items of general or local sanitary interest, newspapers (marked at the part to which it is desired to draw attention), &c.

PUBLISHING.—The terms of subscription not having been raised, although under the new arrangement fifty-two numbers instead of twelve will be sent out annually, all subscriptions now running will continue good for the original period.

HYGIENE will be forwarded, post free, to all parts of the Kingdom, and to all countries within the Postal Union (including the United States, Canada, France, Germany, Belgium, Italy, Austria, Hungary, Spain, Portugal, Switzerland, the Netherlands, Russia, Denmark, Sweden, and Norway), on the following prepaid terms:—Twelve months, 6s. 6d.; six months, 3s. 6d. Subscription terms for Australia, India, the Cape, and all other parts of the world can be ascertained by inquiry at *HYGIENE* office.

ADVERTISERS are requested to bear in mind the greatly increased circulation of *HYGIENE*, with its weekly issue and reduced price. In addition to the large, regular circulation, many thousands of copies are distributed annually to sanitary officials, medical men, private addresses, public libraries, clubs, hotels, &c.

HYGIENE,

A SANITARY PAPER.

VOL. VII.]

FRIDAY, SEPTEMBER 8, 1893.

[No. 17.]

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HEALTHY HOMES.

WITHOUT healthy homes we cannot have healthy people, and without healthy people we cannot have any real social or intellectual advancement.

"Show me the company that a man keeps, and I will tell you the sort of man he is," wrote a great English author. In other words, just as the boy is said to be the father to the future adult, any individual's character and disposition must, in a great measure, depend upon his surroundings. He is more or less a creature of circumstances, and there never was a truer line penned concerning mankind than that of one of our poets, "Such as they're circumstanced, they are."

Suppose a child, placed in a squalid home, under the charge of drunken, dissolute persons, ill-fed and ill-taught, what must that child become by the time it has reached, if it should pass all the difficulties in the way of reaching, maturity? In the vast majority of instances such a child must be debased, morally as well as physically, and turn out a drunkard, a thief, or otherwise a disgrace and a pest. And then society, offended and shocked, steps in to correct and punish the crimes for which she is herself primarily responsible.

Millions of pounds are spent annually in illusory endeavours to improve the condition of the heathen, and in protecting with British bayonets the introduction of gunpowder, "firewater," and other doubtful boons to the "rough, untutored Indian," or to the mild natives of the Pacific Islands, whilst we overlook the

fact that close to our own doors—within, probably, a few minutes' walk of our own well-conducted homes—there exists a state of things which constitutes a disgrace to our boasted civilisation and a slur upon professing religion.

Look, for a moment, at the filthy courts of London, the sunless alleys of Manchester, the cellar dwellings of Liverpool, and the crowded wynds of Glasgow; would any reasonable person venture to assert that we could expect to find decency, order, or sobriety amongst the denizens of these foul, reeking places? No; on the contrary, if anyone hazarded such a belief, he would be regarded as fully qualified for a lunatic asylum.

Yet, the ordinary way of dealing with the question is almost as absurd. We blind our eyes, almost wilfully, to the causes of so much crime and intemperance, and we inflict the utmost rigour of the law upon those whom we have allowed to grow up under such baneful influences.

Further, in consequence of our apathy—indeed, it would be more truthful to say, as the result of our neglect—the evil becomes greater and greater, and while rows after rows of houses for the upper and middle classes spring up in every direction, the very poor continue to be dispossessed of the little space they have been permitted, upon sufferance as it were, to occupy, and are driven to herd together more closely than ever. If a railway or a new street is projected, motives of economy will always induce its promoters to cut through the localities inhabited by the poor, who

can neither claim nor obtain large compensation, in preference to the districts occupied by people of a higher social grade.

Indeed, the displacement of these humble people is often hailed as a public benefit; and when we read in our daily papers that some newly-contemplated railway or street will necessitate the demolition of the homes, such as they are, of hundreds of poor families, we are rather apt to felicitate ourselves upon the fact that the neighbourhood in question will be rendered more respectable by the wholesale eviction. But when these unfortunate people have been turned out, when the contractors' men have pulled the last portion of the roof from over the heads of the helpless victims of improvement, these thousands of evicted go to swell the number of the already too closely packed occupants of other courts and alleys, more crowded, it may be, than those from which they have been ejected. Dives, in his capacity of landlord or leaseholder, gets a good round sum of money in compensation for his interests, enabling him to invest again on a larger scale elsewhere, while Lazarus is possibly hauled before the magistrate for daring to object to ("molest" is the legal phrase) the workmen who have been sent to pull his shabby lodgings about his ears, and he is expected to deem himself fortunate if he can secure, miles further off from his employment, some kind of shelter at the same exorbitant price as that previously extorted from him.

Thus far we have spoken only of the dwellings of the town poor; but are their rural brethren any better off? In many instances, we fear not. They are often housed in hovels so wretchedly built, so badly lighted and ventilated, and so destitute of the most common sanitary requirements, that a landlord or a farmer would often shrink from keeping his horses in a stable as meanly constructed as are many agricultural labourers' cottages.

We shall, doubtless, be told that we have coloured the picture too darkly, and that we have not given sufficient credit for the efforts which are made to ameliorate this state of things. We readily admit the existence of such efforts, but they are too spasmodic, of too exceptional occurrence, and on too limited a scale for them to be considered as a remedy for the overcrowding of the poorest classes everywhere; although great praise is due to philanthropic individuals who have practically taken up the matter.

Some four years ago the late President of the Local Government Board issued important circulars to the metropolitan vestries and district boards and the urban

and rural sanitary authorities throughout the kingdom, directing their attention to the powers which they possess for dealing with unhealthy and improper dwellings, and urging them to put those powers into operation. Mr. Ritchie gave as his reason for this step that the Local Government Board had upon full consideration, come to the conclusion that "a large number of the working population of this country are at present housed in tenements which are either unfit for human habitation, or in such a condition as to be distinctly prejudicial to the health of the inhabitants."

The whole question is one of vital importance, alike to individuals, to society, and to the State, and cannot be too strongly urged upon the Legislature. We venture to assert that "healthy homes and healthy people" would be as good an election cry, at any rate, as a clamour for minimising the number of mothers-in-law, by enabling widowers to marry their deceased wives' sisters, or any of the other ingenious devices for arousing partisan feeling, and eliciting support.

M. P.

CHOLERA: ITS NATURE, CAUSES, SYMPTOMS, AND TREATMENT.

THE news that cholera has effected a footing in England, and that a few cases have already occurred in this country in towns and districts widely separated from one another, has apparently come like an unexpected shock to most people, and is threatening to lead to a sort of panic; at least so we infer from the alarm which we have already seen displayed, an alarm that might easily develop into a downright panic. And surely people may well be startled. One casually hears that a few cases have happened somewhere, and next day the sufferers have become numerous, while a day or two later hundreds are reported ill, and half or three-fourths of the early cases rapidly die. Man feels so abjectly powerless in the face of such a calamity; his philosophy deserts him; statistics he casts contemptuously from him. He cannot stop to examine averages and totals; all he knows is that swiftly, silently, and without warning a fearful disease is striking down hundreds, nay thousands, and that every hour dozens of human lives are being prematurely cut short. What to him are curious medical conjectures and hypotheses? The awful suddenness of the epidemic, which the medical observer tells him is an unanswerable proof that the disease is not contagious, seems to him the surest evidence that it is. How else can he

account for the rapidity with which the disease spreads from house to house and town to town? And then, to be calmly assured that though the greatest authorities have many pet theories, each not accepted, however, by more than two or three observers and investigators, they differ even more completely among themselves as to treatment.

Sixty or seventy years have passed since the disease which we now know as Asiatic cholera left Bengal on its memorable journey westward in 1817. It has visited all parts of the world—some towns fourteen or fifteen times—Hamburg is a case in point—claiming millions of victims. In the meantime tens of thousands of skilled medical inquirers have treated cases; they have investigated, conjectured about, experimented upon, and followed up their cases; discussion has been hot and embittered; the literature of cholera has swelled to proportions which would need a long life to grapple with, and when all is said and done, the chief difference between the experienced physician who has devoted much time and thought to the elucidation of the mystery, and the layman with no special knowledge, and who has only recently taken it up, is that the former is rich in theories and better read in its history, course, and gravity; he may have learnt much that is curious and not a little that is inexplicable, but further than this he cannot go, and when asked two or three plain questions, such as—What is cholera? Why and how does it spread? Why does it affect one town and spare another? he can only begin some long-winded explanation, which may display his vast stores of information, but which, to the perplexed listener, sounds little else than empty words. The truth is that though so much is known *about* cholera, it does not throw any clear light *upon* the disease itself. True, it may be that we have taken the first and most important step. We may hereafter learn much that may be of incalculable service to mankind, but at present we lack the precise information which we sorely need. Our greatest authorities are simply groping in the dark, and a few lines might be found sufficient to convey all that is actually known and can be put to good account.

Cholera has often furnished the novelist with telling situations, as, for instance, in Mrs. Beecher Stowe's beautiful tale "Dred," where Nina, at the most critical part of the history, is struck down by the terrible disease, and dies in a few hours. The suddenness of the invasion, the powerlessness of the poor physician, who, to his consternation, finds out that the disease does not yield to his remedies as he

hoped it would, and the peaceful, painless, and happy death of the heroine, are all so true to nature. There is hardly any complaint in which the victims may die more rapidly; they are struck down in the midst of apparent health and vigour, and are dead in a few hours, nay, in a few minutes.

Let us now go somewhat fully into what is known of cholera. All authorities are agreed that it is native to those districts of India where it is endemic, that is in the region corresponding to the rich and unhealthy deltas of the Ganges and the Brahmaputra, and in the neighbourhood of Cuttack. It used to confine its devastations mainly to the poorer classes of the native population, with whom the English residents had much less to do than in our times. How long it raged and what destruction it wrought are not easy to ascertain, but so little was cholera known to the English that when in 1817 it broke out at Jessor, near Calcutta, it was thought to be an entirely new complaint! In spite of all that has been learnt of late years, some writers are still to be found who speak of Jessore as the cradle of cholera, and date its starting point from 1817, though it visited Europe from time to time since 1500. Sanskrit writers describe cholera four centuries before Christ in terms perfectly recognisable to us. The earliest detailed and accurate description is in 1438, when Ahmed Shah was compelled to raise the siege of Mando in Mehwah, in consequence of an outbreak of a terrible disease, called "waba," among his troops; this "waba" seems to have been our cholera. Fifty-two years later the sailors of Vasco da Gama lost many of their number through it. Moreover, Oolee Beebee, apparently the goddess of cholera, has been worshipped in the delta of the Ganges from time immemorial. The arrival of the English in India helped to spread the disease, in consequence of greater communication set up between different parts of the country. Twenty years after the Battle of Plassey a large part of India had become affected by the disease. Between 1438 and 1817 sixty-six independent observers dealt with the ravages and prevalence of the epidemic in India, and of these ten speak of epidemics in our sense of the word. The first case which attracted English attention was at Jessore, and was seen by Dr. Tytler, but cholera had been raging in Calcutta for several weeks before, and in Bengal it had been an annual visitor for some time. Before 1817 the disease had been epidemic, and had destroyed many lives, but the epidemic which was the means of making it

known to Europeans was one of peculiar malignity, and spread farther than its predecessors. The course taken by the epidemic at its commencement has not been fully traced out, and probably never will be; not, however, that this is a matter of great importance. As early as July, 1817, it was raging at places as far apart as Dacca and Patna, and in September it had got to Allahabad, Mirzapore, and Benares. In October of that year something happened which gave the disease an importance not before attaching to it. The Marquis of Hastings was in the Bundelcund, not far from Allahabad, with an army of more than 10,000 British soldiers, and a much more numerous force of natives. On other occasions cholera had certainly interfered with military movements, but it does not seem to have made havoc among European troops before; this time, however, it broke out among Lord Hastings' British troops, and raged among them with a fury never before approached. For some weeks the disease struck down right and left; then the army was marched out of the Bundelcund and taken to the west towards Gwalior. The mortality at once ceased; thousands of dead and suffering were left behind, but the disease was also left. A lesson was, however, taught that has never since been forgotten—that when an army is invaded by cholera in India it must be at once removed from the infected neighbourhood, and in this way the disease is usually checked; indeed, there is no other way so effectual of dealing with it.

In 1818 cholera overspread the whole of India; it extended up the Ganges valley to Delhi and Agra, and finally made its way across the Sutlej to Lahore. Southwards it also got as far as Nagpore and other places in Central India, while along the East coast it raged at Vizagapatam, in the deltas of the Godavery and Kistnal, at Madras and Pondicherry. Ceylon suffered in 1819; it had also been invaded in 1804, and probably often before. The same year an outbreak occurred in Mauritius, which could be traced to the arrival, with cholera onboard, of the ship "Topaze"; should, however, the evidence be regarded as inconclusive that the "Topaze" brought the disease from Ceylon, it would be difficult to assign any other cause for the outbreak than that it was the result of commercial intercourse. From Mauritius it spread to Madagascar and the Portuguese settlements on the east coast of Africa.

During the general prevalence of this terrible complaint in 1817-19 in India, where in Bundelcund 5,000 men died in five days, the hill forts escaped in a remarkable degree, although the disease was

disastrously prevalent in the plains around. It is now known that places having a high altitude are nearly sure to escape cholera, at any rate for a considerable time; low-lying ground is more favourable to its diffusion; warmth too, is a factor in its prevalence up to a certain point, though when it has once got a thorough footing, even the severe cold of a Russian winter may not suffice to check it.

In 1820 cholera spread over Asia, reaching Canton and Nankin, and, travelling up the Yang-tse-kiang, it finally invaded Peking; 150,000 people are said to have died in the course of this year in Java, while Celebes, the Moluccas, and the Philippines also suffered. Singapore had suffered in 1819, and as so many streams of commerce meet there, it was conjectured that it was the point from which infection spread, and probably this was the case.

Since 1820 the disease has never been absent from Bengal; indeed cholera is always present in certain districts—in the alluvial plains adjoining the great rivers, and more particularly in the deltas of those rivers.

There are many curious questions connected with this terrible epidemic that need answering. The first European country invaded by the disease was Russia, and the first European town of any size was Orenburg, on the Ural, one of the chief effluents of the Caspian. Cholera seems to have reached European Russia by creeping along the Caspian shores from Resht; it did not, however, spread rapidly or far, and disappeared from Syria and Astrachan simultaneously in 1823, although it had been at Damascus and Aleppo, and at Iskanderoon and other places on the Mediterranean. In August, 1829, after an interval of six years, it reappeared at Orenburg, but it has never been ascertained where it came from or how it got there; though it was widely scattered through Central Asia, in Afghanistan, at Teheran, in Persia, in Khiva, in Bokhara, as well as on the Caspian shores.

In 1830 cholera made the first great advance of modern times into Europe. In August of that year there was at Astrachan a fierce epidemic, as also at several places on the Volga, and in September the great epidemic began at Moscow. It is, by the way, thought that the disease had wintered at Astrachan, in spite of the cold of the winter there.

In 1831 the epidemic spread over Central Europe to Warsaw and Cracow, Dantzic, Berlin, and Hamburg, reaching the last in October; in the same month it appeared at Sunderland, and became epidemic there, and in the neighbouring towns, Newcastle, Gateshead,

and Shields. A large number of people had, however, been attacked and died before it was admitted to be malignant cholera. During the previous summer cholera had reached London, and had spread among the seafaring classes, but though nothing was done to check the ravages of the disease, London was not generally affected until the spring of 1832. In the summer of that year it was raging in many seaport towns, and was carried by Irish emigrants across the Atlantic. In June, 1832, it broke out in a lodging-house at Quebec, which was full of these immigrants, and there it killed 56 people; in the next fortnight it spread all over the city, and thence to other towns and districts.

During this year and 1833 it ascended the St. Lawrence, and finally reached Chicago, interfering, by the bye, with the military operations against the Indians. The same year it spread to Cuba, Mobile, New Orleans, Tampico, Mexico, and Vera Cruz. In 1834 Spain was invaded for the first time, and the great epidemics at Madrid and Barcelona were followed by extensions along the Mediterranean coast: Cete, Marseilles, Toulon, Nice, Genoa, and Naples following in the order in which their names are here given.

It has been thought, and probably with good reason, that the disease spread from England to North America, and then along the Mississippi Valley to the Spanish-speaking countries of America, then back to Spain and the Mediterranean. A curious matter would be to find out why the Mediterranean basin escaped so long, although exposed to infection, and why, after the return of the disease, it did not spread north from Marseilles and Genoa into Central Europe. The affection lingered in Europe till 1837, then completely disappeared.

Between March and August 13,000 deaths occurred at Paris in 1832; in 1849 the deaths from all causes rose in one week in London from 1,008, the average at that time, to 3,183. In 1865-6 6,000 to 8,000 persons died in England of cholera, while Austria lost 100,000. In 1885 a few cases happened at Southampton, probably introduced by vessels coming from the Suez Canal; last year—1891—it was prevalent in India and in Central Asia, where it is also said to be endemic.

The Registrar-General, in a supplement to his twenty-ninth annual report in 1868, gives some interesting statistics relating to the mortality from cholera and diarrhœa in each division of England in 1849, 1854, and 1866. In England and Wales the registered deaths from cholera and diarrhœa in the

first of these three epidemics were 72,180; in the second, 40,149; and in the third 31,468; of course by far the larger number was from diarrhœa. In London in these three epidemics the deaths from the two diseases were respectively 18,036, 13,885, and 8,744.

It is perhaps necessary to remind the reader that we cannot always get statistics which are universally accepted by all authorities. The fact is that different observers approach the subject from different stand-points, and not only choose different facts, but handle their facts so differently that we are often surprised how widely different are the conclusions drawn.

"We may assert," says a great authority, "that no amount of overcrowding, of famine, poverty, filth, or any other condition has ever originated an epidemic outbreak of Asiatic cholera beyond its endemic area; but before it becomes epidemic the seeds must have been carried from outside." In the disastrous winter of 1830-1 the Russian army in Poland lost enormous numbers of men, though the cold of a Polish winter is something that would startle an Englishman, and the death-rate from cholera has been severe in November in England, though November is not a particularly dry or sultry month.

(To be continued).

The Cholera is now located amongst us, and the utmost care and vigilance will be necessary to prevent its spreading throughout the whole country. Last year we predicted in these columns that whenever cholera made its appearance in England it would be at one or more of the six following ports,—Hull, Grimsby, London, Southampton, Cardiff, Liverpool; in the five first-named owing to the large amount of shipping arriving from infected parts of the Continent, and at the last-mentioned by reason of the commercial relations of Liverpool with every country in the world, including the United States, from which the dread disease might double back upon Europe. Cases of cholera have occurred this year at four of the six ports in the list. Fortunately, in the interests of public health, we have an excellent sanitary service, and the policy of anticipation of hygienic measures, instead of waiting till cholera was in our midst, has been recommended by all medical officers of health, and adopted by many sanitary authorities. Moreover, there is an excellent central medical staff in connection with the Local Government Board, which has the advantage of having as Parliamentary Secretary Sir Walter B. Foster, M.P., M.D., an able and practical sanitarian. It is, perhaps, not generally known that, at this time last year, Sir Walter Foster, in view of the threatened invasion of cholera, remained at his post in the recess, instead of taking a much-needed holiday and rest.

THE USE OF STAYS.

At the meeting of the British Association, held some time back at Bath, a paper was read in the Physiological Section upon the use of stays. The joint authors, Professor Roy and one of his colleagues in the University of Cambridge, were enthusiastic in praise of corsets, alleging that, worn in the daytime during the principal hours of exertion, these "strange disguisements," as an old writer once called them, are beneficial; and that "reasonably tight lacing" increases mental and physical activity by causing a more liberal supply of blood to the brain muscles, and nerves. At the same time they condemned the extreme practice of tight lacing.

The theory of the Professor and his colleague sounds logical at first, but upon closer investigation it will be seen that they assumed much more than they proved. Admitting, for argument's sake, that Nature has been so remiss in her arrangements that it is necessary for females (how are the men to manage, by the way?) to resort to some means of increasing the flow of blood to the head, &c., by robbing the abdominal viscera, is the practice of compression the most sensible? Blood is forced from the abdominal and thoracic viscera to the head and to the surface of the body by firm pressure; but is this an unmixed benefit to the wearer of tight stays? On the contrary, the gradually reddening nose, the headache and frequent peevish irritability ("increased mental activity"!), the laborious respiration, and the inability either to assume an easy position or to move about with grace and freedom (how about "increased physical activity"?) too plainly demonstrate that "reasonably tight lacing" is fraught with discomfort and danger.

So long as women are to be found who, to gratify personal vanity, or to conform with fashionable notions, will submit cheerfully to any inconvenience, it is little short of folly to advocate "reasonably tight lacing." Who shall decide, too, what constitutes this condition? Besides, if a woman, through physical weakness, needs some kind of support for the back and chest, it should be supplied by the use of some sort of soft material, and not of unyielding corsets, rendered hard by metallic or other inelastic substances.

Hounslow.—The unsatisfactory and crowded state of the infectious diseases hospital in this district has been strongly denounced by Dr. Bullock, the medical officer, as a disgrace to the authorities. It is mentioned that amongst other objectionable features there is within twenty yards of the hospital a pond which has not been emptied for twelve years, though various drains empty themselves into it.

PATENT ALIAS QUACK MEDICINES.

By the EDITOR.

No. XIII. (NEW SERIES).—BEECHAM'S PILLS.

"WORDS, words, mere words," as Shakespeare writes in *Troilus and Cressida*; catchpenny alliteration for an evident purpose. Of course the letter P may set some people thinking of paragons, pearls, and so forth; but we candidly admit—having regard to the cheap composition of the nostrum, the absurd claims of absolutely impossible remedial properties, and the way in which these pills are brought before the public—that we instinctively call to mind that P commences pence, profit, and pickings; "pence" representing the small cost of manufacture, while "profit" and "pickings" supply us with an explanation of all this puffing and pother about one of the commonest of drugs.

We omitted to mention in the heading of this article that the P. P. for P. P. are also styled Dr. Williams's Pills, and in a pamphlet which accompanied our purchase—we hasten to explain that we buy such things for analysis, not for individual use, otherwise our series of articles might come to an abrupt conclusion—this person is described as "an eminent graduate of McGill Medical College, Montreal, and Edinburgh University, Scotland." Williams is by no means a rare name, so that the proprietors of the pills might have given his Christian name, in order to enable us to know more of the great man. At present we can only say that we have exhausted all means of research without being able

* Some of the articles constituting this series have already appeared in *HYGIENE* when published as a monthly magazine, and were reprinted in two volumes. But as one of these—Vol. I.—is out of print, we propose, at the request of many readers, to commence a new series, as much of the matter will doubtless be fresh to the great majority of the readers of *HYGIENE* in its altered form. New reports and analyses will appear from time to time. No. I. (May 13th) included:—Patent Medicines; Patent Medicine Law; Mattei's Electro-Homœopathic Remedies. No. II.—(May 20th), Clarke's Blood Mixture. No. III.—(May 27th), Clarke's Blood Mixture; Chlorodyne and other Opiates. No. IV.—(June 9th), Revalenta Arabica. No. V.—(June 16th), The History of Patent Medicines; The Sequah "Prairie Flower" and Oil. No. VI.—(June 23rd), Holloway's Pills and Ointment. No. VII. (June 30th), Correspondence about Holloway and Mattei. No. VIII. (July 7th), Concerning Advertised Testimonials of Clarke's Blood Mixture. No. IX.—(July 14th), Allen's World's Hair Restorer; Mexican Hair Restorer; Singleton's Golden Ointment for the Eyes; Rowland's Kalydor and Gowland's Lotion for the Skin; Mrs. Anna Ruppert's Skin Tonic; Mattei's Electricities. No. X.—(July 28th), Quack Advertisements and Testimonials; Mother Seigel's Syrup; Clarke's Blood Mixture and the late Dr. Swaine Taylor. No. XI.—(August 11th), Clarke's Blood Mixture; the Alleged Testimonial from the late Dr. Swaine Taylor, F.R.S.; the Obverse and the Reverse. No. XII.—(August 23rd), Quack Testimonials; Mother Seigel's Syrup; Clarke's Blood Mixture.

to trace him in the graduation lists of either McGill College or Edinburgh University. So far, we take leave to doubt the accuracy of the description given of him by the pamphlet-writer for the Dr. Williams' Medicine Company; and our doubt ripens into positive scepticism when we read on the same page that the "Pink Pills for Pale People" are not a patent medicine, but are "a thoroughly scientific preparation, the result of years of careful study on the part of the eminent," &c. That they are a patent medicine, we unhesitatingly assert, and as a matter of fact they are sold with a patent medicine stamp attached to each box. What we do most unhesitatingly assert, too, is that they are not in any degree entitled to be described as a "thoroughly scientific preparation," or as "the only perfect remedy ever discovered," as alleged in the pamphlet. We find it also necessary, in the interests of truth, to expose the falsity of the statement made a little further on, that "they supply, in a condensed form, the substances actually needed to enrich the blood and restore the nerves." Bosh! utter bosh! as we shall presently demonstrate, when we have done with the pamphlet.

In order to invest this singular production with a degree of importance, it opens with a declaration made on oath before the Lord Mayor of London, introduced by these words:—"In order that the British public may know that every word in the remarkable narratives presented in the following pages is the truth, the whole truth, and nothing but the truth, we present the following sworn declaration made before the Right Honourable the Lord Mayor of London, at the Mansion House April 15, 1893. In the face of the sworn testimony, all doubt as to the marvellous curative properties of Dr. Williams' Pink Pills must be dispelled. Carefully read the evidence, and, if suffering from any disease arising from bad blood or shattered nerves, profit by the lesson it contains." This is signed by the business manager of the Williams' Medicine Company, as well as the declaration; a very ordinary kind of document, alleging that to the fullest of his knowledge and belief the statements, names, and addresses printed in the pamphlet are true. In accordance with the Statutory Declarations Act, 1835, anyone can go before a magistrate, or a commissioner for oaths, and make a similar declaration, the whole matter occupying a few seconds, and involving an outlay of a few sixpences. For instance, supposing that a man writes a pamphlet to prove that the earth is flat and not round, there is nothing to prevent another man from going before the Lord Mayor, or any other magistrate, and making a solemn declaration to the effect that to

the fullest of the knowledge and belief of No. 2, No. 1's statements are "absolutely and positively true." Consequently it will be seen that, to any rational individual, a thousand such declarations as that made by the Williams' Medicine Company's manager would be utterly useless for the purpose of dispelling all doubt as to the marvellous curative properties of the Pink Pills. On the other hand, any rational individual would regard a person so closely concerned, as the business manager must be, in the sale of this patent medicine, as the last who should come forward to assert the value of a nostrum in which he was pecuniarily interested. As for Williams' Pink Pills, the Lord Mayor of London knows no more about them, probably, than the doorkeeper of the police-court at the Mansion House, where his Lordship sits for the transaction of public business (including the taking of declarations), or than the constable on duty outside. But it sounds grand to make a declaration before the Lord Mayor of London, and goes down with the unwary or the ignorant as something very important and impressive, and patent medicine men are not slow in availing themselves of handy methods of cheap showy advertisement to enable them to catch the coin of the multitude.

We have taken some trouble to look through this pamphlet, written in a clap-trap style throughout, for the alleged purpose of presenting to the British public "the truth, the whole truth, and nothing but the truth" about the Pink Pills; of which pamphlet it is only right to say that the Lord Mayor of London never read a line, though his name is flaunted in the cover, and here and there in its pages, as carefully as if Sir Stuart Knill had himself vouched for the accuracy of every line of the contents, highly coloured like its gaudy cover.

The perplexity attending our search for the name of Dr. Williams, inventor of the Pink Pills, in any graduation list of Edinburgh University, or of McGill College, Toronto, still pursues us when we come to the bewildering list of diseases which the business manager of Williams' Medicine Company parades before his readers. It goes almost without saying that the business manager claims for the patent medicine he is interested in that it will cure fevers, consumption, paralysis, old age, and other alarming human ills; such assertions come naturally in a patent medicine pamphlet. "Doctor" Beecham tells us, for instance, in his trade circulars, that his pills will search out and remove all kinds of disease, "as sure as water quenches thirst."* But at that point his inventive power fails him; he can only describe remarkable "symptoms" like "hitching of the breast or head." The Williams' Company business manager can give him points;

*See article on Beecham's Pills in HYGIENE of September 1st.

for he enumerates in the list of diseases which Pink Pills search out and infallibly cure, some which have never yet found a place in medicine books, namely, lack of ambition and "shallow complexion." What a chance offers for some new Barnum to exhibit a sufferer from this last-named disease! He must, however, in the words of Mrs. Glasse's famous cookery book, "first catch your hare," and if he searches only amongst patent medicine men he will never succeed in obtaining a specimen, for they are too "deep" to suffer from "shallow complexions."

The pamphlet tells us everything about the Pink Pills—everything, that is to say, calculated to promote their sale—but, while concealing the full name and address of their inventor, it also conceals the composition of the pills; or rather, which is worse, it gives several absolutely erroneous explanations. As to these being the "only scientific and rational and only perfect remedy ever discovered," we will not insult the common sense of our readers by taking further notice of such obvious falsities, made worse by appearing in a pamphlet which the Lord Mayor of London is alleged to have assisted in declaring to be "the truth, the whole truth, and nothing but the truth." Where could the business manager have learned the physiological fiction contained in the assertion that the Pink Pills "supply, in a condensed form, the substances actually needed to enrich the blood and restore the nerves?" Did Williams tell him this nonsense when selling his wonderful secret to the company? If we may gauge Williams' knowledge by this sample, there is a far greater miracle than the pills to be accounted for, and that is, how Williams ever qualified himself to become—if he ever did become—"an eminent graduate" of that old-established seat of learning, Edinburgh University. Such assertions "won't wash," any more than the pills themselves, which soon lose their pretty colour when placed in water.

We defy anyone living to produce a treatise on physiology which mentions the component parts of these pills amongst "substances actually needed to enrich the blood and restore the nerves." Our readers may begin to ask what these component matters are. Well, as neither the Lord Mayor of London, nor the doorkeeper of the Mansion House police-court, nor the outside constable are here to give us information, if they could, we must fall back upon a more reliable source, and invoke analytical assistance.

Mr. George Selkirk Jones, an analyst of many years' standing, and author of the *Chemical Vade-mecum*, has examined them. We append his report, dated Horsham, Sussex, September 1st, 1893:—

"PINK PILLS FOR PALE PEOPLE."

"I have now made a careful analysis of these pills, and I find their composition to be as follows:—

"Extract of Barbadoes Aloes, enclosed in a thin coating of Sugar, coloured pink with Carmine.

"Seeing that these pills are said to have been successfully used in America for the cure of a 'given-up' case of paralysis, and also of rheumatism, fevers, &c., I have carefully examined them for other drugs, but have discovered none other than that mentioned, viz.—Aloes. If asked for my opinion (as a medical practitioner) whether these pills are capable of doing what is stated of them, *upon oath*, I should answer emphatically, 'No, certainly not.'"

Our old acquaintance, again, Aloes, the universal sheet-anchor of patent medicine makers; the commonest kind of aloes, too, namely, the Barbadoes species, the best suited for horse balls and cattle physic, according to veterinary authorities. This vulgar drug is the sole medicinal agent upon which the mysterious Williams bases his claim to rank as a leading scientist and a great discoverer. Why, even his patent medicine brethren would dispute his pretensions. Mother Seigel, the Indian Sequah, Holloway, Beecham—one and all—assert that they discovered aloes, though known centuries before patent medicine men existed any more than venomous reptiles in Ireland. Good old times! Perhaps, since aloes will not cure consumption, paralysis, fevers, &c., Williams, "the eminent," may rely on the other ingredients. He is welcome to any small comfort he may derive from them; the sugar to sweeten his chagrin at the exposure of his pretensions, or the carmine to hide his blushes. We as much doubt, however, a patent medicine man's power of blushing as we do the alleged power of his nostrum to effect miracles.

Portsmouth Water Supply.—The town council have rejected by a majority of 19 to 14 a proposal to purchase the water-works supplying Portsmouth from the private company owning them. The amount recommended by a committee of the council was a little over one million pounds.

Fatent alias Quack Medicines.—It is estimated that the British public pays more than £2,000,000 yearly for patent nostrums. But the loss of this enormous sum, of which doctors and chemists are indirectly defrauded, is nothing compared with the injury to health and, often, loss of life which results from people dosing themselves with quack medicines and incurring dangerous delays, during which the maladies they suffer would be readily amenable to proper treatment.

NOTES ON THE MANAGEMENT OF THE HYGIENIC TREATMENT OF DOMESTIC SEWAGE BY SPENCE'S PATENT ALUMINOFERRIC PROCESS.*

By the late SIR W. W. GULL, Bart., M.D.

1. TYPHOID is a disease which runs a more or less definite course. It cannot be stopped or cured simply by medicines.

2. The chief thing to be done at the outset of an attack is to send the patient to bed, so as to save strength from the beginning.

3. No strong purgative medicines are desirable.

4. As the fever develops and the strength grows less, light food should be given at short intervals. This must be directed medically, but in general it may be said that the amount required is that which induces repose and sleep.

5. The bowels may be left to themselves. If unmoved for twenty-four hours or thirty-six hours a lavement of warm water may be necessary.

6. The restlessness or wakefulness in fever is best remedied by the careful giving of wine or spirit with the food or in water. Sedatives, such as opium, are inadmissible—mostly injurious.

7. The bedroom should be kept at a temperature of 62° to 64°.

8. Great care is necessary to keep the bed clean and sweet. This is most easily done by having in the room a second bed, to which the patient can be removed for two or three hours daily whilst the other is thoroughly aired and the linen changed.

9. All fatigue is to be sedulously avoided. No visitors should be admitted, and no other person than a nurse, and one attendant to help her.

10. The patient's room should never be left unattended for a moment, as, in the delirium of fever, the patient might jump from bed and injure himself.

11. As to medicines and the treatment of complications, the immediate medical attendant must be responsible.

12. As the discharges from the bowels in typhoid fever are a source of contagion, it is desirable that before being thrown down the closet they should be largely mixed with some disinfectant. On the same principle the strictest cleanliness must be observed in the sick room.

13. There is no reason to believe that typhoid fever is contagious from individual to individual in the ordinary way. The largest experience shows that it does not extend like an ordinary contagious disease to nurses or others attending upon patients suffering under the disease.

(With special reference to the purification of the sewage of mansions, public institutions, and small villages.)

It is now almost universally acknowledged that any method of dealing successfully with sewage must begin with chemical precipitation, whether the effluent be afterwards run on to the land, passed through a filter, or discharged direct into a stream. When raw untreated sewage is run over land there is always a nuisance created, if not positive danger to health; and when, as usually happens, the land becomes choked, it is unsightly as well as noxious.

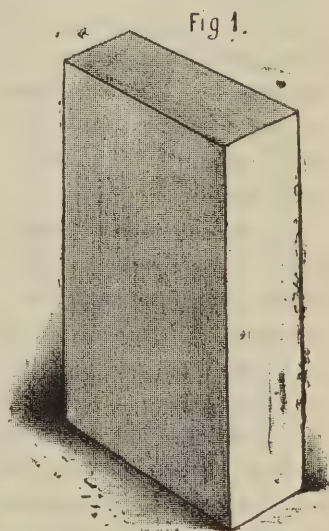
Chemical treatment is not only necessary to prevent nuisance, but actually costs less than irrigation with raw sewage when we take into account the rent of land, supervision, &c.

For this chemical treatment it is necessary to have a precipitant which is cheap, of convenient form, easily handled, and can be kept for an indefinite time without losing strength. These conditions are eminently fulfilled by Aluminoferroc. It is produced for the purpose in slabs, a sketch of which is shown in Fig. 1. The size of the slab is about 20 inches long, 10 inches wide, and 4 inches thick, and it weighs about half a hundredweight.

Such a slab is sufficient to treat 50,000 gallons of sewage. Or we may state it in this way: One slab per week will purify a flow of 7,000 gallons of sewage per twenty-four hours—that is to say, the sewage from about 200 people.

The method of using the material is shown in Fig. 2, the cake being placed on end in a perforated wooden box, standing in the sewage flow near the entrance to the tank.

For convenience of use in very small quantities, the



* Having received various inquiries concerning the Aluminoferroc process of sewage treatment, we reprint here a description which has been published by Messrs. Peter Spence & Sons, Manchester Alum Works, Manchester.—Ed. HYGIENE.

Aluminoferrie is also supplied in the form of bars of a size about 18 inches long and 4 inches square (see Fig 1a). Each bar weighs about 14 lbs., and is, therefore, very easily stored and handled. A bar of this size will purify a quarter as much sewage as a full-sized slab.

An iron bar cage, such as represented by Fig. 2a, is suitable for holding the Aluminoferrie bar, the cage

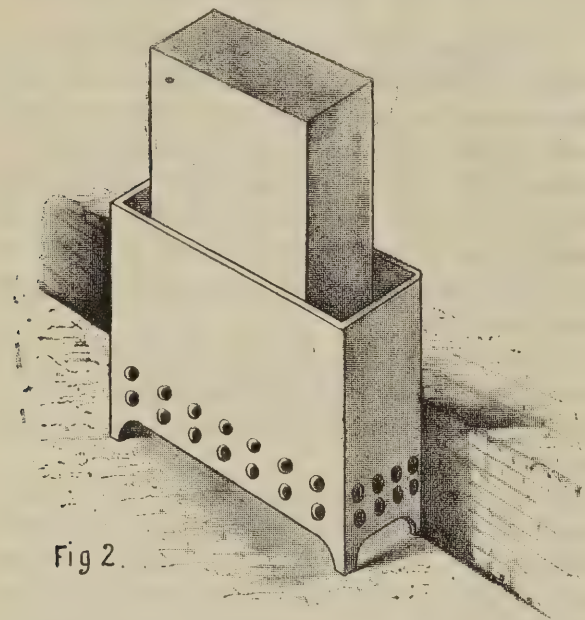


Fig 2.

standing in the sewage flow, the end of the bar being just immersed.

The box or cage and slab need very little supervision, an important consideration with a small sewage flow. As in the case before mentioned, the renewal of the slab is only necessary about once a week, the other one having gradually dissolved away during the previous seven days.

The sewage, having passed the Aluminoferrie and dissolved a portion of it, at once undergoes a remarkable change. There is rapid coagulation of the impurities, the liquid being observed to divide into two portions—(1) a clear water, and (2) a flocculent precipitate descending through it.

It is necessary for the changed sewage now to flow into a suitable tank, which will allow this coagulated impurity to settle to the bottom, and the clear effluent to run away.

The question is, What should be the shape, size, and capacity of the settling tanks? We may say that for tanks on a small scale the capacity ought to be sufficient to contain twenty-four hours' flow of the sewage. That is to say, if 1,000 gallons flow into the tank in twenty-four hours, that quantity (160 cubic feet) ought to be its contents. If, on the other hand, the quantity of water is not known, but only the number of the people for which

the tank is intended, then it may be taken that the quantity per twenty-four hours will be about thirty gallons per head, or where water-closets and baths are used about forty gallons per head. Of course this is assuming that no large proportion of the rainfall finds its way into the tank.

The shape of the settling tank is by no means a matter of indifference; and (as the result of much experience and consideration) we always recommend tanks of oblong shape, with at least one division, and a continuous flow through. By this arrangement it is possible, at any time, to lay off one section of the tank without interfering with the flow of the sewage. The section so laid off can then be emptied and re-started. Fig. 3 illustrates this.

The tank is divided into two sections, A and B, with side channel C, also entrance channel with dissolving box in position.

Each section measures 6 ft. by 5 ft. by 4 ft. deep, and is sufficient for the total refuse water from 40 to 50 persons. The tank is shown constructed of brickwork with wooden sluices.

The sewage enters at the pipe D, flows past the box containing the Aluminoferrie K, thence into the first section A, then over the partition into B, thence over the end weir, into the exit pipe F, the sluices *a*, *b*, and *c* being closed. After working some time the tank becomes more or less filled with sludge, the greater part

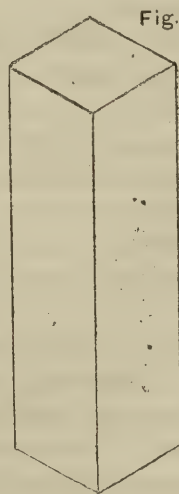


Fig. 1a.

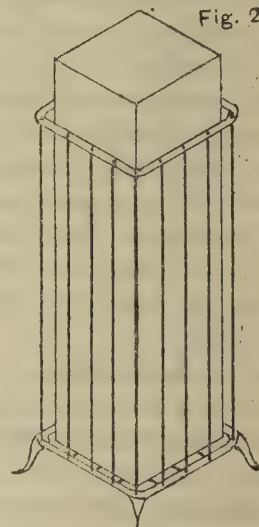


Fig. 2a.

of which will collect in the first part A, so that it is necessary to lay off this section for emptying and cleaning out. This is done by opening the sluice *b*, thus allowing the sewage to flow through the side channel into B. For this reason the sluices are made deeper than the entrance overflow into A. The sewage flow being now turned off from A, the clear liquor it contains

should be quietly pumped off by means of a hand-pump into the channel alongside B, and below the sluice *c*. The sludge must now be similarly removed, and run on to ashes or dry earth to drain. After a day or two in summer, or longer in winter, it becomes solid enough to handle, and forms a very good manure for garden or field use, being stated by a leading authority as at least equal in value to the same weight of farmyard manure.

Referring again to Fig. 3, it is seen that the section B may be similarly laid off by opening the sluices *a*, *c*, and closing *b*.

For a larger quantity of sewage, the settling tank may be constructed on a similar plan with proportionately larger area (the depth should not be much increased, as

The effect of light in destroying noxious bacteria has recently been shown to be potent and remarkable. There is another important reason for leaving the tank uncovered, namely, that a free current of air is allowed to enter the end of the drain and pass through it, and then up the ventilating pipes which are fitted to all properly constructed drains. By this means it is quite impossible for foul gases to collect in the drain, and thence find their way possibly into the cooking or dwelling rooms. It is needless to say that the pipes must have a fall all the way from the house to the tank, so as to prevent the formation of a "lute," causing a constant generation of sewer gas without any ventilating air current through the drain as described.

Fig. 5 shows this clearly: No. 1, the straight drain with

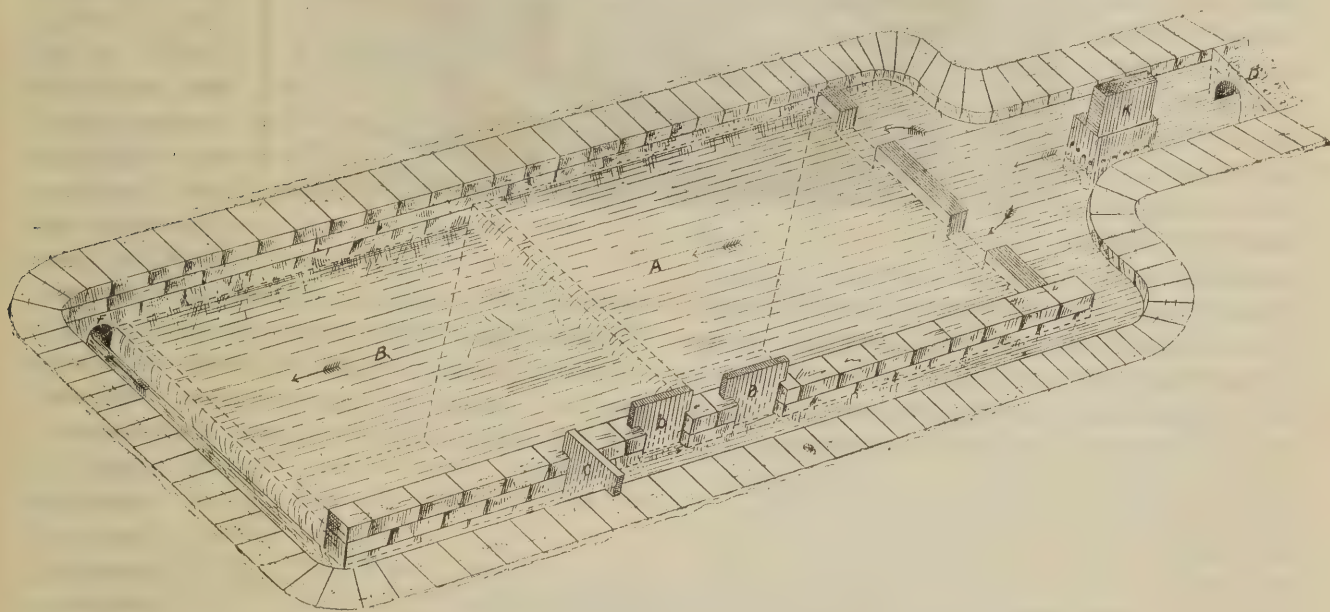


FIG. 3.

there is increased difficulty in cleaning out a deeper tank). Thus for 100 persons the dimensions would be—total length 20 ft., width 6 ft., depth 4 ft. If any light matter floats on the surface of the water in the tank, it is advisable to use a scum-board to prevent it entering the effluent drain.

In choosing the site of the settling tank, several conditions must be borne in mind; for example, an open situation is desirable, to allow free access of light and air. For this reason the tank should not be covered, but should be left open. It may be planted round with shrubs at such a distance as to allow of ready access to it for cleaning, &c.; the whole being railed round, as shown in Fig. 4. In this way the operations can all be carried out without causing nuisance or unsightliness.

free current of air and no lodgment of matter; No. 2, the faulty drain, causing nuisance through the putrefying mass of refuse lodged in it.

It cannot be too strongly insisted on that fresh sewage is harmless, and that it is only after putrefaction commences that danger begins.

The fermentation taking place causes noxious gases to rise in the liquid, such as carbonic acid and sulphuretted hydrogen. The mass swarms with the bacteria about which we have heard so much lately. The gases evolved are saturated with the germs of these bacteria, and these, if breathed or deposited on food, are the cause of great evil, if not actual disease. Hence the necessity of treating the sewage when quite fresh and before any such putrefaction has appeared, dealing with it at once, precipitating

out of it all putrefiable matter in the inodorous form produced by the Aluminoferric, and thus at the same time securing an effluent clear, harmless, and permanently non-putrescent.

NOTES.

The Aluminoferric is a more concentrated salt of alumina than alum. It has also the great advantage over it that—strength for strength—it is less than half its price; and that, unlike alum, it contains sufficient oxide of iron to fix the sulphur of any offensive sulphur compounds that may be present in the sewage.

Recent experiments with Aluminoferric as a pre-

cipitant of towns' water have shown that three-fourths of a grain of it added to a gallon of Manchester water renders it absolutely germ-free. Moreover, the purified water contains no constituent of any kind which was not present in it before treatment—the alumina and iron being them-

selves carried down with the germs and the impurities. In the case of alum a minute proportion of sulphate of potash or sulphate of ammonia is left in the treated water.

The following extracts illustrate the action of Aluminoferric on sewage, &c. :—

I.—Report of Royal Commission on Metropolitan Sewage, by Dr. Tidy, 1884 :—

"The whole art of treating sewage chemically is to

precipitate and clarify it while fresh. Precipitation consists in producing an artificial coagulum in the fluid, and this coagulum mechanically entangles and carries down the organisms into the sludge."

II.—Extract from a method of preparing germ-free water, by V. and A. Babes. *Journal of Bacteriology*, Vol. XII., 1892 :—

"After many experiments with the various sand, porcelain, silica, &c., filters, we found that the filtered water contained as many, or in some cases more, germs than before filtration, so that we were obliged to try some other means to obtain germ-free water; viz., to use some substance which would precipitate the germs

form the water. The most useful substance for this purpose is powdered alum. We shook up some powdered alum with a large quantity of water, and allowed the same to stand in a cool room for twenty-four hours. The water had then become quite clear, and to our surprise we

found it perfectly free from germs. The following experiment was then made :—One litre of water, very rich in bacteria (1,200 in 1 centimetre), was shaken with '15

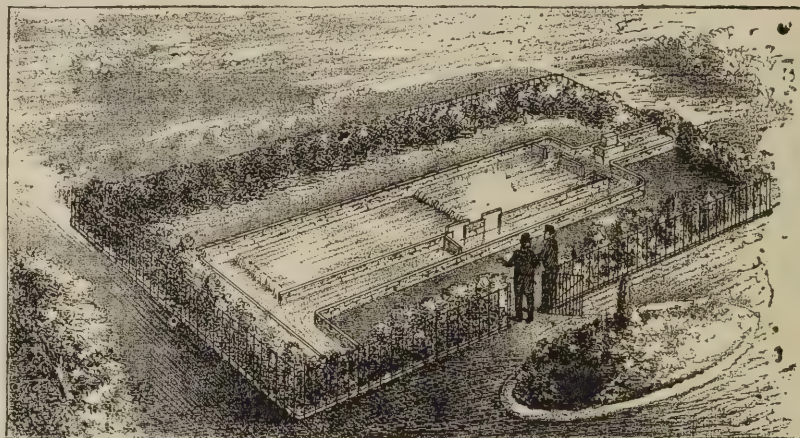


FIG. 4.

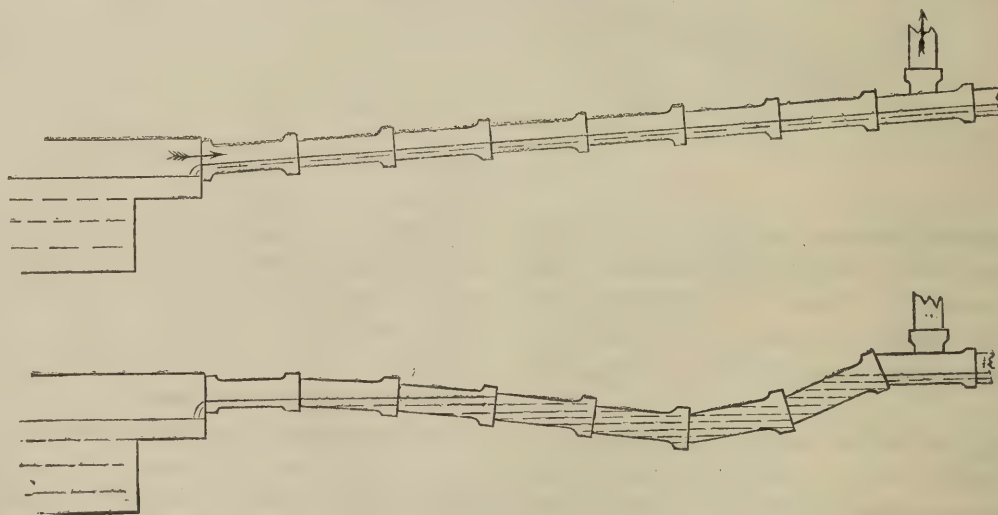


FIG. 5.

gram of alum (this equals 10 grains per gallon), and then allowed to stand. After twelve hours the water had become quite clear, and free from germs. The bacteria germs removed from the water were found to be contained in the sediment thrown down by the alum."

Respecting the cost of the Aluminoferric process, this is very small. The principal item is the tanks, and these, as will be seen from the illustrations, are by no means expensive.

The cost of the Aluminoferric is also inconsiderable for a house of, say, fifty persons. This may be estimated at from £2 to £3 per annum.

SCHOOL HYGIENE.

"La Santé est le facteur qui fait valoir les zéros de l'Education."

WHEN Montaigne wrote the essay from which we quote, and when John Locke—most philosophical of physicians—followed in his footsteps, one hundred years afterwards, education was in a primitive condition. Nor has so much of value been added to it since as many would suppose. The principles enunciated by the former author, and made popular to English readers by the latter, have found a prominent position in the text-books of all who have written upon the subject subsequently; and though Hufeland, Pestalozzi, Fröbel, Dupanloup, Lancaster, and others, down to the authorities of our own time, all express their own special views, yet they all reverently and instinctively bow before their great teacher.

Montaigne laid it down as an axiom that "Those who separate the education of the mind from that of the body do a great wrong."

Dupanloup says, "Education is a skilful gardener, who places the plant confided to him in a good soil, sprinkles it with water, surrounds it with favourable conditions, and shelters it with care."

Fonsagrives tells us of a "blind tenderness" which makes our children invalids, and a "murderous pride" which forces them to ride a steeple-chase to destruction, by making them Latin scholars at twelve years of age and accountants at fourteen.

Dr. Rumsey says, "The future man exists in embryo in the school-room," and that he has known boys "of rare parts sicken and die" under the baneful excitement of over-teaching, whilst others have become "hopeless lunatics."

Locke did not exactly recommend "tunding" as formerly practised so freely at Winchester, but he differed somewhat from Montaigne in that respect; and, inasmuch as even iron becomes hard by hammering and soft by heat, so he infers that human nature may readily be made to yield to the genial warmth of kindness.

In truth, the mind of a child is like wax, and will as certainly and quickly take an impression. It is not, however, our purpose to write an essay on education in

the abstract, and therefore we will repeat an instructive observation made by Locke, "That if we had been accustomed to go bareheaded from our birth, and to wrap our hands in furs, it would be quite as dangerous to wet the hands as many people now consider it to be to wet the feet."

Hufeland was a physician, and the first authority who brought the object of education into the legitimate domain of Physic. In his day the instructor of youth was called "the high priest of Nature," which is only a paraphrase of Hippocrates, who says, "*Medicus Nature minister et interpres*"—the physician is the minister and interpreter of Nature.

In this utilitarian age of ours, these grand principles are cast aside, and, as regards the great mass of the people, they have been educated or not, just as may chance to be. It is a matter of common remark that the education of our pauper children is sometimes better than that of some of the guardians; and that, in some of our schools and seminaries with high-sounding names, in fashionable localities, the first object is to make money by putting *extra* charges on any and every possible occasion. Whilst we are writing, we call to mind the case of a lad of twelve years of age whose education cost his parents £80 a year; and yet the "high priest of Nature," under whose tutelage he is placed, charges sixpence for a matutinal egg at breakfast, or for a small slice of cold meat, which the boy sitting next to this lad feasts upon also—with his eyes.

An authority on the subject sums up the too frequent state of ordinary schools thus:—"Narrow rooms, low, damp, and deprived of sun, sometimes hot and close, saturated with bad odours, or subject to draughts. The seats are too high or too low, the positions dangerous for the lungs, the stomach, the circulation, the spinal column, or the brain." Then, too, the "dazzling reflections of light" (and some of our new and splendid school rooms admit the light on three sides) injure the eyesight in various ways.

(To be continued.)

EDIBLE BIRDS' NESTS.

ALTHOUGH almost unknown in this country, there is a nest something of the same style found in some parts of America, but which has not yet, we believe, been utilised for making the birds' nest soup. The true edible bird's nest swiftlet is a native of Ceylon and of the Malay region, and it builds in caves, where materials for architecture are necessarily scanty, or on sea-cliffs of inaccessible

sible height. More than most other swifts, this tropical species is a confirmed high flyer, hawking for its food around the summits of the mountains, and much indisposed to settle on the ground for any reason. Hence it has learnt to carry to the furthest possible limit the family habit of making a nest quite literally "all out of its own head," without the slightest extraneous aid of any sort. The best and cleanest nests, which fetch the highest price, are composed entirely of pure mucus from the salivary glands. The material in its hardened state is brittle, fibrous, white, and transparent, very like pure gum arabic, or even glass, and the inner lining consists of nothing but small soft feathers. Inferior nests, which command a smaller price in the Chinese market, are composed in part of dry grasses, hair, and down, welded together by the fibrous gummy secretion. The idea of using such things for food is, doubtless, strange to European palates; but when we ourselves give up colouring jellies with defunct cochineal insects, swallowing living oysters, and some other eccentricities of diet, it will be time for us to cast the first stone at the Chinese cuisine. In shape the nests are much like hanging pouches glued on the wall of the cave by their own mucous, and containing each two eggs. All the swifts, indeed, are very small layers, as is invariably the case with the more active animals. The "take" is in October, and most of the nests go to China, where the soup ranks as a high luxury. The soup made with these nests may be very delicious, but it is a question whether the quality and flavour does not depend more upon the stock or *consommé*.

NEWS AND NOTES.

Fever and Small-pox in the Metropolis.—During the past fortnight 3,168 cases of fever have been under treatment in the hospitals of the Metropolitan Asylums Board, being an increase of twenty over the previous fortnight. The small-pox patients numbered 130, being 48 less than in the previous two weeks.

The Leeds Water Supply is in a most unsatisfactory condition. A recent report states that the storage amount at the Fawston reservoir is only 85 million of gallons as against 787 millions at the corresponding period of last year; while at Swinsty and Lindley Wood there are 470 million gallons and 162 million gallons, as against 895 millions and 618 millions, at the same date last year. The fourth Leeds reservoir, at Eccup, is empty, being under repair. As a consequence of this condition Leeds has barely a sufficient supply for one month. Street-watering has been suspended, and the domestic supply put under restrictions.

ANSWERS TO CORRESPONDENTS.

M. D. (Leamington).—We have handed your subscription to our publishers, who will supply *HYGIENE* regularly. We thank you for your kind appreciation of our efforts to expose quackery, and we agree with you that the best way in which medical men could support us in our heavy task would be to subscribe to the journal, and to bring it under the notice of their professional brethren patients, and other friends.

Mr. Lewis.—Send further particulars.

The following articles will receive early insertion:—An Age of Stimulants, No. 4. A Substitute for Tea; Public Health Reports, Bridlington, etc.; Sanitary Hints for Householders; Country Labourers' Cottages; School Hygiene; Wine; Reviews and Notices of Books, etc.

Mr. J. C. Kenworthy, honorary secretary of the English Land Colonisation Society, has sent us the report of the committee of this excellent society. All who wish well to their efforts, which have for their aim to aid the establishment of the people upon the land, and to assist the revival of rural industries, should communicate with Mr. Kenworthy, at the society's office, 41, Bedford-row, London, W.C.

Sanitary Inspector.—You cannot do better than attend the course of lectures at the Sanitary Institute. See our last number, page 235.

A Lady Reader.—The medical officer of health of your district—whom we know as an able and energetic sanitarian—would be the best person to advise you.

A. G. (Liverpool).—See articles on cholera, now appearing in *HYGIENE*.

M. O. H.—The *Annales d'Hygiene*, published in Paris.

S. W.—Thanks for the suggestion. An analysis is now being made.

EDITORIAL AND PUBLISHING NOTICES.

EDITORIAL.—The Editor begs to express his thanks to numerous correspondents, and to state that he will be pleased to receive any articles or correspondence coming within the scope of *HYGIENE*, books or pamphlets for review, reports of medical officers of health, items of general or local sanitary interest, newspapers (marked at the part to which it is desired to draw attention), &c.

ADVERTISERS are requested to bear in mind the greatly increased circulation of *HYGIENE*, with its weekly issue and reduced price. In addition to the large, regular circulation, many thousands of copies are distributed annually to sanitary officials, medical men, private addresses, public libraries, clubs, hotels, &c.

HYGIENE,

A SANITARY PAPER.

VOL. VII.]

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CHOLERA: ITS NATURE, CAUSES, SYMPTOMS, AND TREATMENT.

(Continued from page 241.)

Cholera again reached the Caspian in 1847 ; in 1848 it reached Hamburg from the Baltic coasts in September ; it again came to England and passed on to America, and both at New Orleans and at New York, where the disease broke out simultaneously, it was clear that it had been introduced by immigrants.

In 1853 cholera once more broke out at St. Petersburg, reaching London and Liverpool in July, but it did not become epidemic in this country till 1854. The disease once more appeared in Europe in 1865 ; this time it was thought to have reached Europe by the Mediterranean. It prevailed at Mecca in the spring of 1865, and appeared at Malta on June 20. In Paris 5,000 people died in five months. Southampton was also the seat of a trifling epidemic, traced by the late Dr. Parkes to the introduction of the disease by ships from Alexandria, where it was prevalent.

The remarkable outbreak of cholera at Altenberg, in central Germany, August 29, 1865, was one of the strangest events in the history of cholera. The epidemic lasted four months ; this district is watered by tributaries of the Elbe. In July, 1866, as mentioned above, it had reached London and Liverpool. The victorious Prussians on their march through Bohemia passed through the country which had been the scene of the epidemic in the preceding year, and on their return found the disease at Leipsic and

Halle. The Prussians lost more men by the cholera than they had done on the battle-field in the long series of brilliant victories which they had gained over the Austrian troops in the great campaigns of that eventful summer.

In Germany there were epidemics in 1873-4-5, but none of these reached England, although one must confess that cases of something very like Asiatic cholera have occasionally occurred in this country, and some experienced practitioners believe and assert that the disease has never been entirely absent. This, however, is an opinion which is not easy to establish or to disprove. For example, we saw a case in a Midland town which presented features unlike those of any form of summer cholera or English diarrhœa, and an able and distinguished practitioner of long standing at once pronounced it, from our description given while we were actually attending the patient, to be Asiatic cholera. The patient recovered.

The number of deaths is sometimes perfectly awful, that is in unhealthy towns, and over a few days ; nevertheless, when the deaths for a year are examined, and over a wide area, the percentage shrinks to very modest figures. For example, as an instance of a high death rate, in 1883 the population of Damietta was 32,730, and of these 1,830 died of cholera, being in the ratio of 559 per 10,000. In the three epidemics of 1849-54 and '66 the total deaths from cholera in England and Wales were 53,293, 20,097, and 14,378 ; these respectively represent 30, 11, and 7 per 10,000 of the population. Looked at in this calm, dispassionate

fashion, the mortality seems small; nevertheless, when an epidemic is at its height it causes much suffering, and though the medical philosopher may point with calmness to such facts as these, the sufferers must be pardoned if their composure is less pronounced than his.

How does cholera spread if it is not contagious or infectious? Well, in this fashion. The diffusion of cholera must be due to the dispersion of infected persons or of the things, such as clothing, with which they have been in contact, or to the spreading through the air of *cholera dust*, an impalpable and invisible something eluding the observer. Cholera has a marvellous power of haunting localities, so that a house, street, town, or district, where the disease prevails to-day, becomes thereby more liable to a recurrence of it in a second year. The contagion of cholera—understanding by contagion the subtle something which conveys it from person to person and place to place—is capable, after weeks or even months of quiescence, of becoming active again as soon as the conditions are once more favourable; but who can tell what those conditions are?

What must be clearly understood is that the seed must be sown; unless this is done, however hot or cold the season and healthy or unhealthy the district, an epidemic is impossible. Nevertheless, people can and do carry the contagion with them to distant places, and in the vast majority of cases the spread of the epidemic can be followed from place to place with wonderful certainty, and as the course of the disease can be traced out so easily in nearly all cases, it is but reasonable to assume that in the very few instances in which the outbreak cannot be traced to infection, it is, nevertheless, due to infection, although the precise conveyer of the infection may elude observation.

The disease is not connected with heat alone, though certainly in hot climates it destroys life with fearful suddenness and frequency, for it has been destructive enough, as we have shown above, in Canada and Northern Russia, nor in most epidemics is the hottest month the one in which the mortality is highest. The following figures from Prussia are conclusive on these points.

In Prussia, in the thirteen years between 1848-1860, the mortality in the various months stood as follows from Asiatic cholera:—

January, 2,317; February, 842; March, 214; April, 112; May, 446; June, 4,392; July, 8,480; August, 33,640; September, 56,561; October, 35,271; November, 17,630; December, 7,254: nearly 170,000 lives lost.

These figures show that the winter does not stop the disease; the spring seems to have more power that

way, while September and October (the latter in Prussia a decidedly cold month) are those in which the disease is most to be dreaded.

The liability of a place to cholera is undoubtedly greater when the soil is not drained either naturally or artificially, and when it is saturated with liquid containing abundant organised material from the tissues of plants and animals, so as to render it a fit receptacle for the development and propagation of the disease germs.

If we possessed the requisite knowledge, the disease could always be traced back in lineal descent to its origin in some poor Hindoo on the banks of the Ganges, as certainly as the pedigree of a horse or a dog can be followed to its remote ancestors.

We hope it is made clear that cholera depends on an organism which has to be carried or diffused by persons or the air, and which, when received by a person in a suitable state, takes a firm hold. The sickly, worried, intemperate, and over-worked are all, therefore, more likely to be fit subjects for its diffusion, and are less likely to escape contracting the disease and less likely to recover when attacked than stronger, healthier, and more fortunate persons living near them.

One can clearly see how it is that the underfed and miserably dirty emigrants from Russia and Poland may carry the disease far and wide; so may the destitute Irish in their wanderings through England and America. It is not, however, quite so obvious how it comes about that the disease will devastate a district for a time and then become quiescent or disappear altogether, because one would rather expect that when it had gained a firm or permanent footing in a place it would be most difficult to expel; this does not seem to be the case, and however sudden its invasion and terrible its ravages it does not linger long, but runs its course with frightful rapidity, disappearing almost as suddenly as it came, though it may return a few months or a year later and attack an even larger number of victims.

Cholera differs from many of the contagious fevers in this important particular, that whereas *they* attack the healthiest and the strongest, and do not spare the weakest, *it* must find a suitable home for its germs; if it does not, it is harmless. The theory which ascribes Asiatic cholera to the use of bad water—that is to say, of polluted water—has much to rest upon, and is confirmed by many terrible outbreaks and epidemics, while communities inhabiting a clean, well-drained soil, and drinking pure, uncontaminated water, escape, though their neighbours, less favoured in both respects, may perish in hundreds and thousands. One can easily see why seaports should so

often receive cases from infected areas, and why from the character of the soil, the disease, being once admitted, should gain a firm footing and destroy so many lives and be so difficult to expel.

Cholera Morbus, or Asiatic cholera, is not simply summer diarrhoea of an aggravated type, nor is it due to eating bad or unripe fruit or tainted meat, though this is to be carefully avoided. The mortality is greatest at the commencement of the epidemic, in this resembling all other epidemic complaints, which necessarily affect those most prone or susceptible to them, while those persons who have greater powers of resistance escape for a time, and when they have the disease it is in a less aggravated form, and is attended by smaller danger. The vast majority of people, even in the infected areas, are, however, fortunate enough to escape altogether, not being susceptible to the contagion. In this, too, the disease resembles all other epidemic complaints. But the man who escapes this year, in spite of being constantly in the way of infection, may in the next epidemic succumb and rapidly die.

The mortality differs widely at different times; in India it has reached 90 per cent. of those affected, and fallen in another epidemic to 15. In 1885 of 233,546 persons attacked in Spain 82,619 died. An attack of the disease is no safeguard against another.

To call the deadly epidemic *cholera* is very inappropriate, as it seems to imply that a flow of bile accompanies the disease; unfortunately the name cholera has been inseparably connected with the disease, so that it can now hardly be displaced.

In the great majority of cases the disease is preceded by simple diarrhoea more or less profuse, and this may last a few hours or extend to many days. With this diarrhoea vomiting may occur; there is, however, little constitutional disturbance, and it is difficult to make the patient understand that his condition is grave. Cramp is usually, but not always, present in epidemic cholera, and causes extreme pain; the feet, calves, and abdominal walls are affected, sometimes to a remarkable degree; nevertheless so well is the strength sustained that patients a few moments before death are sometimes able to walk about with ease. The secretions are singularly affected and diminished, so that even nervous women cannot weep, the flow of tears having ceased; but women who are suckling continue to have abundance of milk. The skin becomes dark and blue to a remarkable degree, and is covered with a copious sticky secretion or perspiration; sometimes the skin is cold and dry, but of this the patient is not often conscious; at times he complains of heat, and insists on being uncovered. The fall of

temperature may amount to 2 or even 4 degrees; it may actually fall to 90° Fah., and has even been known to sink to 73°, being 25° below the normal—a most astounding circumstance, and one particularly interesting to the doctor. The skin becomes very shrivelled, and often looks like that of a washerwoman. Thirst is a prominent symptom; the sufferer cries for fluids, especially for iced water, which he swallows with great eagerness. In the last stage the appearance is remarkable—the patient looking positively old, although he may be quite young according to years. So common and severe is the collapse that it is customary to speak of the patient as being in the stage before collapse, or in the stage of collapse. Collapse nearly always comes on sooner or later, but death may occur without collapse taking place. Should the patient pass out of the stage of collapse, he does not usually recover at once, but passes into the stage of reaction, the temperature then rising above the normal, and there being some febrile excitement.

But reaction does not always mean recovery, and death occurs in a large percentage of cases in which reaction is set up, and when recovery ultimately takes place the patient is generally weak and exhausted for a long time; one might look for this, as so fearful a disease could hardly run its course without severe after-effects. Moreover, in the advanced stages of the disease the blood gets thick and somewhat resembles treacle, hardly flowing from the veins should they be opened. This thickness of the blood suggested the advisability of injecting warm water or salt and water.

Mr. Ernest Hart, in an address delivered in the lecture-room of the National Health Society, described Asiatic cholera as a "filth disease, which was carried by dirty people to dirty places. It only developed when it found dirty places," in the sanitary, not the popular sense, and the habitual drinking of polluted water, and living on a polluted soil. Formerly, cholera took three years to reach England from the East; now it takes only three months. Last year's epidemic raged in Kashmir in May, and mounting the Volga by steamer, it soon found in the filth of Russian villages and towns ample material for a devastating extension, destroying 5,000 to 6,000 lives a day as it passed through the Russian Empire. "Cholera," continued Mr. Hart, "was a preventable disease in India as it is in England. Wherever, as in Calcutta and Madras, the water supply had been purified and the soil scavenged, cholera has been kept out. From India cholera has always been brought to England and to Europe by its present route, or by the Meccan pilgrims to the shores of the Red Sea, and thence to the

Mediterranean. At Mecca the pilgrims stood in crowds by the holy well, and a bucket of the sacred water was poured in turn over each, who drank as much as he could of it, and the remainder fell back into the well. An English chemist had analysed the water, and he had found it to be filthily polluted. On the last occasion after this ceremony the 12 miles of road to Ararat were in a few days strewn with corpses, and 30,000 pilgrims perished. The Hamburg epidemic was due to the drinking water from the Elbe, which supplied the city, being impure. The great thing to be done is to get a pure water supply, and to see that the soil is kept sweet and wholesome; then the choleraic germs, if they are brought, die, and there is no outbreak of the disease."

Dr. J. Jackson, the resident medical officer of the London Hospital during the cholera epidemic of 1866, mentions that in the height of that epidemic upwards of 100 persons were employed in the cholera wards; seven were medical officers, five volunteer nurses, five sisters, eighty ordinary nurses, and five porters. No medical officers, volunteer nurses, or sisters were attacked; the porters also escaped, but five ordinary nurses contracted the disease, and four died; of these four, three slept outside the hospital, presumably in the cholera district. Eleven women were employed in the laundry, and of these one had the complaint and died; she also was non-resident. As the mortality among laundresses has usually been large in cholera epidemics, this shows that with proper care it need not be excessive, and is one of the many arguments in proof that, in spite of many facts apparently pointing to the contrary, cholera is not contagious, though as a matter of fact measures were adopted as though contagion was a reality; so says Dr. Fraser, one of the physicians to the London Hospital.

The following excellent rules were published in the *Daily Graphic*, when cholera was threatening in England last summer; it would be impossible to improve on them. It may be urged that they are almost too simple, but therein lies their chief merit; anyone can carry them out at a trifling expense, and by thus doing can ensure the air, water, and soil in his immediate vicinity being pure, and, in a sanitary sense, clean.

1. Boil all water before drinking.
2. Do not drink water that has been boiled more than 24 hours after boiling.
3. Do not trust to filtering.
4. The dangerous qualities of water are not obviated by the addition of wine or spirits.
5. See that all water pipes and cisterns are clean.
6. Boil all milk immediately upon its arrival in the house.

7. House refuse should be cleared away immediately.
8. Thorough washing, followed by lime washing, of uncleanly, and especially of densely occupied premises, should be frequently done.
9. Be careful not to breathe impure air or air vitiated by odours from sewers, house drains, and cess-pools.
10. See that no leakage of impure air arises from the closet or sewer pipes.
11. See that your cistern waste pipe is cut off from the sewer waste pipe.
12. Use the following disinfectants:—For floors or soiled linen, corrosive sublimate; for large masses of filth, sulphate of iron; for unoccupied rooms, sulphurous acid gas.
13. Should any inmate of the house be attacked, all excreta and soiled linen should be immediately disinfected.

Measures of cleanliness taken *beforehand* are of far more importance for the protection of a district or house against cholera than removal or disinfection of filth *after* the disease has actually made its appearance.

Who drew up those rules we do not know, but they brought a letter from Dr. B. W. Richardson, F.R.S., couched in his most felicitous style. We cannot do better than reproduce portions of that letter, which appeared in the *Daily Graphic*:—

"The thirteen rules you published are all sound and good. They are very simple, and, carried out faithfully, will do a great deal to prevent the spread of the affection. You ask me if there are any further details which my experience would suggest. I will name one or two. In former epidemics there has been an admixture of types of the disease. There has been the true Asiatic cholera, the ordinary English cholera, and what may be called the choleraic flux of fear or panic. Not infrequently the ordinary choleraic diarrhoea, under the influence of fear, has passed into such marked semblance of the true Asiatic malady that it has been difficult, I may say sometimes impossible, to distinguish the one from the other. This fact conveys the lesson that every cause leading to ordinary autumnal diarrhoea should be avoided with more than usual care. Fruit that is unripe or over ripe, or that is broken on its surface and has been attacked by flies or other insects, ought to be carefully avoided. This precaution particularly extends to children, who, from their love of fruit and want of knowledge, are apt to eat at random, and to an immoderate extent, any fruit that may be put before them. Fresh fruit should be thoroughly washed in water that has been boiled, and should not be put on the table until it has undergone

this process, except in the case of such fruits as admit of being peeled. Some fruits, the outer coverings of which are never eaten, had better be taken with prudence. Melon is one of these, a fruit specially tempting at this season. The precaution should be taken in respect of all large fruits, like melon and pine, that when once cut they should be used fresh, and not put aside exposed to the air. Left in the air the fruit undergoes a fermentation on the surface, and eaten in this state causes diarrhœa, which is sometimes troublesome to check under ordinary circumstances. On the whole, during the present crisis, it is common sense to boil fresh fruit, such as plums and apples, and to prepare no more than may be required for a single meal.

Fish at this season is no uncommon cause of choleraic derangement. The Spaniards recognise a disease which they call fish poison; the symptoms are so closely allied to those of malignant cholera that the one is with difficulty diagnosed from the other by symptoms alone. I have seen in this country a similar affection from lobster swallowed after it had undergone a slight and little noticeable decomposition. Fish preserved in tins, and indeed tinned meats generally, are well dispensed with at present; but if it be necessary to take them, and a tin be opened, it is advisable to have any residue re-cooked by boiling, baking, frying, or otherwise exposing to heat, before using it as food.

Water that has been boiled may, with advantage, be passed through a clean filter and then used to drink. Tea, coffee, and cocoa, inasmuch as they are made with boiling water, are safe. Milk also that has been boiled is safe, but even milk that has been boiled, if allowed to stand for a long time exposed to the air, should be re-boiled. Acid drinks, effervescing drinks, and mixtures of such drinks are not advisable; they create acidity, upset the digestion, encourage the desire for more fluid, and create disturbance which is likely to be mischievous. It is good policy as a matter of fact to drink as little as possible; not to deprive the body of the fluid it demands, but to let it be satisfied with what it requires; to drink, if I may say so without offence, as the dog drinks, when natural thirst calls, and not to gratify a mere taste for fluid. As to alcoholic drinks, the rule supplied about them is golden. Their presence in water is not protective, and their presence at all as a drink is productive of the extremest danger. In true as well as ordinary cholera they keep up thirst; they do not assuage it; they reduce the normal temperature; they relax the capillaries and promote choleraic discharge, and cause mental and nervous torpor, which, in extreme cases, is delusive towards death. I have known

persons suffering from severe choleraic symptoms who have thought that a warm stimulating draught, like hot brandy and water, allayed the symptoms. The remedy is a snare—it is the warmth that is of service, not the mocking stimulant. Fear is a common cause of evil when cholera is in the air. Fear alone is capable of inducing a kind of cholera at any time, and when fear is exalted into panic it is a dangerous addition to the disease that excites it. I have never been able to determine in what manner cholera is contagious. I think it possible that the mode is known, but I am not sure. Of one thing, however, I am sure, that over and above any physical contagion there is also a prevailing nervous contagion, especially in the commencement of an epidemic, which leads to aggravation of the disease, and which produces a semblance of it in highly strung, nervous persons, which passes for the real malady. The lesson from this is quick isolation of the affected from those who are unaffected. The rules given for disinfection are good, but they are secondary to absolute cleanliness. When disinfectants are used to cover uncleanness, or as substitutes for perfect cleanliness, they are valueless. It is not sufficient to remove infected articles of clothing from the sick infected with Asiatic cholera. The room in which the sick person lies should be as light as day; every cup, basin, and utensil should be especially cleansed, and every towel or cloth cleansed. The late Dr. John Snow, who advanced the water theory of cholera, showed that in close quarters infected with cholera the friends of the sick would use the vessels which the sick had used without scalding them, and would dry their own cups, plates, and saucers on the same towels or cloths that had been used for drying the vessels taken from the patient. We have observed the same serious error, and that attendants had been careless about keeping their hands and raiment free of impurity. We have noticed in previous epidemics that women engaged in washing the clothes of the choleraic sick were specially liable to the disease. Dr. William Farr was an early observer of this, and told me that it impressed him more than any other fact in favour of Snow's theory of the spread of cholera by water. The lesson is to make sure, in cleansing the clothes, to secure perfect exposure to boiling heat. The clothes may be charged with cold water to saturation, but they ought to be immediately immersed in water that is actually boiling, and they ought to be kept in boiling water for twenty minutes at least. Also, all water that has been in contact with clothes ought to be boiled before it is poured down the sink or closet. One of the worst outbreaks of cholera that occurred in the Crimea

had its origin in water in which some French soldiers, who were suffering from cholera, had washed their infected garments. We need hardly add that in every house the sinks and closets should be kept specially clean. Disinfectants may be poured down, but the greatest purifier is water in abundance, so that every trace of dangerous material may be flushed and washed out of the dwelling. The last point I would urge relates to the course which those who are attacked with choleraic symptoms should take. They should avoid panic, drink freely of simple warm fluids, boiled milk with water being the best of all; assume the recumbent posture; keep themselves very warm; and as soon as possible obtain the aid of a medical practitioner, who, according to the nature of the attack, will promptly prescribe the proper remedy—in this he cannot be too prompt, since cholera of all mortal diseases is the one that calls most promptly for treatment in its earliest stages.”

(To be continued.)

PUBLIC HEALTH REPORTS.

Bridlington Rural Sanitary Authority.—This Yorkshire district comprises an area of 60,145 acres, with a population of 7,929 at the 1891 census, which showed a decrease of 458 as compared with that enumerated ten years previously at the 1881 census. This decrease in the population, like that in many other rural parts of the country, affords evidence of the drain caused by the removal of many of the inhabitants of our villages to larger places in the quest of more remunerative or continuous employment. Nor is this due, as some writers would have us suppose, to purely local conditions, such as the completion of large railway works or the closing of a factory employing many hands. There are thirty-one parishes in the Bridlington rural sanitary district, and there has been a falling off of the number of inhabitants in 17, or more than half of the total parishes in the decade from 1881 to 1891; while in several of the others the population has remained virtually stationary. The migration from the district included a considerable proportion of the healthy middle-aged, as evidenced by the birth-rate during the past year, which was 27.63 per 1,000, being 2.87 below the birth-rate of the whole of England and Wales in the corresponding period.

The death-rate for the twelve months was low, being 13.25 per 1,000. The infantile deaths constituted 25.3 per cent. of the total mortality—an infantile death-rate of 122.2 per 1,000 children born alive, which is 22.0 below the mean rate of England and Wales for the decennium

1882-91. The zymotic death-rate was 1.75, being 0.5 below the corresponding rate for all England and Wales. The infectious disease which gave most trouble during the year was typhoid fever, of which 14 cases occurred, obviously traceable to local contamination of water supply, a point upon which the medical officer of health (Mr. Wetwan, M.R.C.S.) lays some stress in his report.

As to the general water supply of the district, it is unsatisfactory, often in the larger villages “either contaminated or drawn from suspicious sources so palpably open to pollution as should forbid their being used for drinking purposes.” The small villages and outlying cottages fare worse, for their water supply “is almost entirely drawn,” says Mr. Wetwan, “from rain-water cisterns of open brickwork, commonly sunk in the ground close to cesspools, and not far from piggeries and the domestic refuse heap, or dug into the carefully-manured garden plot, whose percolations constantly find their way into the drinking water.” Truly, infection made easy, whenever the *materies morbi* is present, to give a start. Mr. Wetwan suggests that the larger villages (those with 500 inhabitants or upwards) would be better supplied by means of deep wells and borings, fitted with storage tanks and worked by hydraulic machinery; whilst scattered houses should be supplied from a well or deep cistern situated at a distance from sources of contamination, and thoroughly cemented in the upper 12 or 15 feet. Powers to effect such a supply are given by the Public Health Act, 1875 (Section 51), and the Public Health (Water) Act, 1878 (Section 3).

Concerning drainage, Mr. Wetwan summarises by saying, “What there is of drainage is generally bad,” a sweeping assertion which reminds one of the epitomised description which an explorer gave of the social life of a tribe he had come across in his travels,—“Manners they have none, and their customs are simply beastly.” But then the tribe referred to were mere savages, whilst Mr. Wetwan is speaking of sanitary customs in a rural district of civilised England, no worse than hundreds of others of which it may be taken as a type.

Where drainage is generally bad, or conspicuous by its absence, one does not expect to find the scavenging and other sanitary arrangements of a high order, so that we are prepared to learn from the report before us that the major part of the district (Mr. Wetwan gives due credit, however, to the fairly good sanitary condition of some portions) “requires a very great deal of improvement to bring it into line with modern requirements.”

We note that Mr. James Stephenson, sanitary inspector for the district, in the tabular statement of cases brought by him before the Rural Sanitary Authority, attributes

five-sixths of the nuisances reported on to insufficient drainage or defective privies.

[Dr. Thresh's summary of the reports of the district medical officers of health in the county of Essex stands over to a subsequent issue of *HYGIENE*.]

*PATENT ALIAS QUACK MEDICINES.**

By the EDITOR.

NO. XIV. (NEW SERIES).—PINK PILLS FOR PALE PEOPLE.

[*SPECIAL NOTICE*.—This article appeared in *HYGIENE* for September 8th, but owing to an oversight on the part of the printers, instead of the proper heading, as now given, the title of the previous article of the series was inserted. Seeing that the nostrum dealt with is not Beecham's, but Williams' Pills, it has been thought best to reproduce the article in this number of *HYGIENE* with its proper heading.]

"WORDS, words, mere words," as Shakespeare writes in *Troilus and Cressida*; catchpenny alliteration for an evident purpose. Of course the letter P may set some people thinking of paragons, pearls, and so forth; but we candidly admit—having regard to the cheap composition of the nostrum, the absurd claims of absolutely impossible remedial properties, and the way in which these pills are brought before the public—that we instinctively call to mind that P commences pence, profit, and pickings;

* Some of the articles constituting this series have already appeared in *HYGIENE* when published as a monthly magazine, and were reprinted in two volumes. But as one of these—Vol. I.—is out of print, we propose, at the request of many readers, to commence a new series, as much of the matter will doubtless be fresh to the great majority of the readers of *HYGIENE* in its altered form. New reports and analyses will appear from time to time. No. I. (May 13th) included:—Patent Medicines; Patent Medicine Law; Mattei's Electro-Homœopathic Remedies. No. II.—(May 20th), Clarke's Blood Mixture. No. III.—(May 27th), Clarke's Blood Mixture; Chlorodyne and other Opiates. No. IV.—(June 9th), Revalenta Arabica. No. V.—(June 16th), The History of Patent Medicines; The Sequah "Prairie Flower" and Oil. No. VI.—(June 23rd), Holloway's Pills and Ointment. No. VII. (June 30th), Correspondence about Holloway and Mattei. No. VIII. (July 7th), Concerning Advertised Testimonials of Clarke's Blood Mixture. No. IX.—(July 14th), Allen's World's Hair Restorer; Mexican Hair Restorer; Singleton's Golden Ointment for the Eyes; Rowland's Kalydor and Gowland's Lotion for the Skin; Mrs. Anna Ruppert's Skin Tonic; Mattei's Electricities. No. X.—(July 28th), Quack Advertisements and Testimonials; Mother Seigel's Syrup; Clarke's Blood Mixture and the late Dr. Swaine Taylor. No. XI.—(August 11th), Clarke's Blood Mixture; the Alleged Testimonial from the late Dr. Swaine Taylor, F.R.S.; the Obverse and the Reverse. No. XII.—(August 23rd), Quack Testimonials; Mother Seigel's Syrup; Clarke's Blood Mixture. No. XIII.—(Sept. 1st), Beecham's Pills.

"pence" representing the small cost of manufacture, while "profit" and "pickings" supply us with an explanation of all this puffing and pother about one of the commonest of drugs.

The Pink Pills for Pale People are also styled Dr. Williams' Pills, and in a pamphlet which accompanied our purchase—we hasten to explain that we buy such things for analysis, not for individual use, otherwise our series of articles might come to an abrupt conclusion—this person is described as "an eminent graduate of McGill Medical College, Montreal, and Edinburgh University, Scotland." Williams is by no means a rare name, so that the proprietors of the pills might have given his Christian name, in order to enable us to know more of the great man. At present we can only say that we have exhausted all means of research without being able to trace him in the graduation lists of either McGill College or Edinburgh University. So far, we take leave to doubt the accuracy of the description given of him by the pamphlet-writer for the Dr. Williams' Medicine Company; and our doubt ripens into positive scepticism when we read on the same page that the "Pink Pills for Pale People" are not a patent medicine, but are "a thoroughly scientific preparation, the result of years of careful study on the part of the eminent," &c. That they are a patent medicine, we unhesitatingly assert, and as a matter of fact they are sold with a patent medicine stamp attached to each box. What we do most unhesitatingly assert, too, is that they are not in any degree entitled to be described as a "thoroughly scientific preparation," or as "the only perfect remedy ever discovered," as alleged in the pamphlet. We find it also necessary, in the interests of truth, to expose the falsity of the statement made a little further on, that "they supply, in a condensed form, the substances actually needed to enrich the blood and restore the nerves." Bosh! utter bosh! as we shall presently demonstrate, when we have done with the pamphlet.

In order to invest this singular production with a degree of importance, it opens with a declaration made on oath before the Lord Mayor of London, introduced by these words:—"In order that the British public may know that every word in the remarkable narratives presented in the following pages is the truth, the whole truth, and nothing but the truth, we present the following sworn declaration made before the Right Honourable the Lord Mayor of London, at the Mansion House, April 15, 1893. In the face of the sworn testimony, all doubt as to the marvellous curative properties of Dr. Williams' Pink Pills must be dispelled. Carefully read

the evidence, and, if suffering from any disease arising from bad blood or shattered nerves, profit by the lesson it contains." This is signed by the business manager of the Williams' Medicine Company, as well as the declaration; a very ordinary kind of document, alleging that to the fullest of his knowledge and belief the statements, names, and addresses printed in the pamphlet are true. In accordance with the Statutory Declarations Act, 1835, anyone can go before a magistrate, or a commissioner for oaths, and make a similar declaration, the whole matter occupying a few seconds, and involving an outlay of a few sixpences. For instance, supposing that a man writes a pamphlet to prove that the earth is flat and not round, there is nothing to prevent another man from going before the Lord Mayor, or any other magistrate, and making a solemn declaration to the effect that to the fullest of the knowledge and belief of No. 2, No. 1's statements are "absolutely and positively true." Consequently it will be seen that, to any rational individual, a thousand such declarations as that made by the Williams' Medicine Company's manager would be utterly useless for the purpose of dispelling all doubt as to the marvellous curative properties of the Pink Pills. On the other hand, any rational individual would regard a person so closely concerned, as the business manager must be, in the sale of this patent medicine, as the last who should come forward to assert the value of a nostrum in which he was pecuniarily interested. As for Williams' Pink Pills, the Lord Mayor of London knows no more about them, probably, than the doorkeeper of the police-court at the Mansion House, where his Lordship sits for the transaction of public business (including the taking of declarations), or than the constable on duty outside. But it sounds grand to make a declaration before the Lord Mayor of London, and goes down with the unwary or the ignorant as something very important and impressive, and patent medicine men are not slow in availing themselves of handy methods of cheap showy advertisement to enable them to catch the coin of the multitude.

We have taken some trouble to look through this pamphlet, written in a clap-trap style throughout, for the alleged purpose of presenting to the British public "the truth, the whole truth, and nothing but the truth" about the Pink Pills; of which pamphlet it is only right to say that the Lord Mayor of London never read a line, though his name is flaunted in the cover, and here and there in its pages, as carefully as if Sir Stuart Knill had himself vouched for the accuracy of every line of the contents, highly coloured like its gaudy cover.

The perplexity attending our search for the name of Dr. Williams, inventor of the Pink Pills, in any graduation

list of Edinburgh University, or of McGill College, Toronto, still pursues us when we come to the bewildering list of diseases which the business manager of Williams' Medicine Company parades before his readers. It goes almost without saying that the business manager claims for the patent medicine he is interested in that it will cure fevers, consumption, paralysis, old age, and other alarming human ills; such assertions come naturally in a patent medicine pamphlet. "Doctor" Beecham tells us, for instance, in his trade circulars, that his pills will search out and remove all kinds of disease, "as sure as water quenches thirst."* But at that point his inventive power fails him; he can only describe remarkable "symptoms" like "*hitching* of the breast or head." The Williams' Company business manager can give him points; for he enumerates in the list of diseases which Pink Pills search out and infallibly cure, some which have never yet found a place in medicine books, namely, lack of ambition and "shallow complexion." What a chance offers for some new Barnum to exhibit a sufferer from this last-named disease! He must, however, in the words of Mrs. Glasse's famous cookery book, "*first catch his hare*," and if he searches only amongst patent medicine men he will never succeed in obtaining a specimen, for they are too "*deep*" to suffer from "*shallow complexions*."

The pamphlet tells us everything about the Pink Pills—everything, that is to say, calculated to promote their sale—but, while concealing the full name and address of their inventor, it also conceals the composition of the pills; or rather, which is worse, it gives several absolutely erroneous explanations. As to these being the "only scientific and rational and only perfect remedy ever discovered," we will not insult the common sense of our readers by taking further notice of such obvious falsities, made worse by appearing in a pamphlet which the Lord Mayor of London is alleged to have assisted in declaring to be "the truth, the whole truth, and nothing but the truth." Where could the business manager have learned the physiological fiction contained in the assertion that the Pink Pills "supply, in a condensed form, the substances actually needed to enrich the blood and restore the nerves?" Did Williams tell him this nonsense when selling his wonderful secret to the company? If we may gauge Williams' knowledge by this sample, there is a far greater miracle than the pills to be accounted for, and that is, how Williams ever qualified himself to become—if he ever did become—"an eminent graduate" of that old-established seat of learning, Edinburgh

*See article on Beecham's Pills in HYGIENE of September 1st.

University. Such assertions "won't wash," any more than the pills themselves, which soon lose their pretty colour when placed in water.

We defy anyone living to produce a treatise on physiology which mentions the component parts of these pills amongst "substances actually needed to enrich the blood and restore the nerves." Our readers may begin to ask what these component matters are. Well, as neither the Lord Mayor of London, nor the doorkeeper of the Mansion House police-court, nor the outside constable are here to give us information, if they could, we must fall back upon a more reliable source, and invoke analytical assistance.

Mr. George Selkirk Jones, an analyst of many years' standing, and author of the *Chemical Vaite-mecum*, has examined them. We append his report, dated Horsham, Sussex, September 1st, 1893 :—

"PINK PILLS FOR PALE PEOPLE.

"I have now made a careful analysis of these pills, and I find their composition to be as follows :—

"Extract of Barbadoes *Aloes*, enclosed in a thin coating of *Sugar*, coloured pink with *Carmin*."

"Seeing that these pills are said to have been successfully used in America for the cure of a 'given-up' case of paralysis, and also of rheumatism, fevers, &c., I have carefully examined them for other drugs, but have discovered none other than that mentioned, viz.—*Aloes*. If asked for my opinion (as a medical practitioner) whether these pills are capable of doing what is stated of them, *upon oath*, I should answer emphatically, 'No, certainly not.'"

Our old acquaintance, again, *Aloes*, the universal sheet-anchor of patent medicine makers; the commonest kind of *aloes*, too, namely, the Barbadoes species, the best suited for horse balls and cattle physic, according to veterinary authorities. This vulgar drug is the sole medicinal agent upon which the mysterious Williams bases his claim to rank as a leading scientist and a great discoverer. Why, even his patent medicine brethren would dispute his pretensions. Mother Seigel, the Indian Sequah, Holloway, Beecham—one and all—assert that they discovered *aloes*, though known centuries before patent medicine men existed, any more than venomous reptiles in Ireland. Good old times! Perhaps, since *aloes* will not cure consumption, paralysis, fevers, &c., Williams, "the eminent," may rely on the other ingredients. He is welcome to any small comfort he may derive from them; the sugar to sweeten his chagrin at the exposure of his pretensions, or the carmine

to hide his blushes. We as much doubt, however, a patent medicine man's power of blushing as we do the alleged power of his nostrum to effect miracles.

[The next article, No. XV., will be upon Warner's "Safe Cure."]

SCHOOL HYGIENE.

(Concluded from page 249.)

These are the conditions in which many of our children are brought up at schools. The result is far greater illness and mortality amongst children than there should be.

Hufeland insists that "we must not form the mind at the expense of the body," and Fonsangrives tells us that, in his early life, he used to see "fine young men, of twenty, with quiet manner, fresh colour, and honest faces, who had sound health, and did their work steadily and well." "Nowadays," he continues, "they are replaced by children—men of seventeen or eighteen, thin, nervous, pale, and perhaps married, led on by ambition to their destined career. Some drop by the way, a few (thanks to innate vigour) resist these trials, whilst the majority of them arrive at maturity attenuated, their bodies destroyed by anticipated efforts, and their intellects impaired and incapable through immature mental exertion."

When this degeneration occurs it is a sad reality, and it is a foregone conclusion that, by weakening the physical condition, the moral force of the character is proportionately destroyed.

The fine and bright flame of intelligence burns only by consuming the body. Though it is non-material in its nature, yet it requires a material aliment, and wears out the organic strength of the body which supplies it. And whilst muscular effort works out its own repairs by giving a better appetite for food and increasing the digestion, on the other hand, mental exertion in undue proportion intensifies the evil, depresses the vital functions, and so prevents necessary recuperation.

Professor Velpeau, of Paris, under whom the writer of this article had the pleasure of being a student, enunciated this fact in a few pithy words which have since passed into an aphorism :—"Once destroy the balance between mental and physical condition; what you gain in intellect you pay in tubercle" (*i.e.*, consumption).

Even the teacher has been aptly compared to a candle which burns itself out in enlightening others, and he (or she) is sometimes a martyr in a better cause than the so-called hero who dies upon a rampart. The time has not yet come when this is accepted as a truism, but

come it must ; and recent sad cases of suicide by teachers, with numerous less widely known instances of physical break-down amongst them, serve to illustrate the force of our argument.

The question of the food of children is a matter of primary consideration in connection with education. Within our knowledge a boiled bullock's head and a few potatoes have been given at one of our suburban schools (the promise of "unlimited diet" is flaunted on its prospectus) as a dinner for twenty boys, and a dozen small fresh herrings have been called a dinner for the same number of young ladies, whose parents paid very high fees for them. But to regard such diet as a meal, or to call a couple of thin slices of bread and butter and hot water with barely enough tea and sugar to satisfy one's conscience, or copiously diluted milk, of the character described in police reports as "country," by the name of either breakfast or tea, is worse than a farce, and it is an insult to common sense to be asked to suppose it possible that the human frame can be built up of such scanty materials.

The activity of all the processes of life concomitant with youth—circulation, absorption, and respiration—go on at a rapid rate, and the food is transferred into the living body and appropriated, not only in supporting it, but in adding to its size and weight.

How, then, can we expect a satisfactory result from the ordinary diet of such schools as we have referred to? Whatever the principals of many educational establishments may say, or prospectuses may promise, the fact remains—and it is notorious—that when children return home for the holidays, they have a great craving for sugar, and butter, and cake, all rich in elements of heat, and fat-producers, wherewith to balance the equation in their organic structure. How is it that hysterical girls often get well when they come home from school, though the doctors could do nothing with them there? Because after their return they have a diet suited to their physical requirements, as well as unlimited in quantity. We may "tone down" the subject as best we may, to suit our objection to disagreeable truths, but the hard fact will still remain that, in many of our boarding-schools, the system is not so very much in advance of "baby-farming."

In the District Schools, too, what do we often observe? A vast aggregate of human atoms, who are counted by hundreds, possibly a thousand, in one building—and with what result? Speaking from personal observations, we assert that children in such circumstances lose their individuality, and insensibly become mere numerals, like the inmates of a penitentiary. This happens without

wish or intention ; and as there is a moral and social obliquity so there is also a physical divergence. In evidence of this, witness the outbreaks of ringworm and other skin affections, or of ophthalmia, which are occasionally chronicled in the daily press as occurring in various large District Schools.

The reader will, perhaps, be surprised to learn that the average number of cases of deformity in schools, in various degrees of development, taken generally and promiscuously, has been estimated as high as 40 per cent. amongst girls and 20 per cent. amongst boys, and that the great majority of cases of spinal deformity are referred as to their origin to the period of scholastic life. Eminent ophthalmic surgeons have remarked that defect of vision, a common result of mismanagement of schools, runs *pari passu* with spinal deformity.

In the great question of education, and of various collateral matters, the Americans are far before us, and before most, if not all, European nations. It is not a little singular that the American desks and seats with backs, for the pupils, are almost identical with those adopted by Joseph Lancaster, when he, tired of the alternative strong opposition and oppressive patronage which he received in this country, emigrated to the United States.

Joseph Lancaster began to keep school in London in the year 1798, when he was eighteen years old, in a room in his father's house. He purchased some old boards, and fitted up the school-room with his own hands, and thus commenced an institution which, to quote his own words, "drew forth the opposition of the bigot and the persecution of men eager in the pursuit of popularity, but too idle to earn it."

He had 100 pupils, but being without money to engage teachers, he set one pupil to teach another, and thus originated his system, which has been copied and modified a hundred ways, although very rarely acknowledged. Subsequently he had 300 scholars, and eventually as many as 800 boys and 200 girls, and to those who were too poor to pay he gave education freely.

He discovered that "he could educate three or four children in elementary knowledge for a guinea," a fact which we beg to submit to School Board authorities, referring them to Joseph Lancaster's own work on the subject as our authority. He frequently took his pupils out for a walk, and he mentions that on one occasion he took "500 pupils out on an excursion in perfect order and peace." Lancaster carried on his school from 1798 to 1804, and then, leaving it to the management of others, he travelled throughout England ; but, as he says in his Memoirs, the committee got into debt, treated him as

if he were a "hired servant," and so he finally turned his back on his country. He adopted America as his future home, and was, as far as we can learn, the founder of the admirable system of public instruction now practised in the United States.

Education is, so to speak, the nursing mother who teaches the child its first step out of "a darkness that can be felt," and also the willing handmaid who converts the child into the man.

When a child takes a dislike to his studies his conduct and his morals are so closely connected that they suffer alike, and call for serious and immediate consideration. This deterioration may be frequently traced to the hygienic condition of the school.

Three hundred cubic feet of space is the least amount that ought to be allowed for each individual. Children respire oftener than adults, though their lung capacity is less; so that, with regard to this point, they ought to be treated as adults. For instance, a room, 10 feet high, 20 feet long, and 15 feet wide, is barely enough for eight pupils and two teachers; if the room were 12 feet high, and of the same other dimensions, it might be used for two more persons. In fact, all rooms used for education should be 12 feet high at least. Oertel found by experiment that in well-ventilated private houses 10,000 parts of air contain 8 to 10 parts of carbonic acid. But elsewhere the proportion was as follows:—

Hospitals, 14 to 30 parts in 10,000;

Prisons, 13 to 33;

Barracks, 27 to 53;

Schools, 16 to 94.

And, in the last-named instance with what results? Is it surprising that, on entering a schoolroom where there are a number of pupils, we find that the air is damp and loaded with an unwholesome smell?—just the sort of atmosphere, in fact, which Dr. Guillaume has described as "*Miasme scolaire*."

Besides this deterioration we have dust floating about in large quantities, as we can verify when a sunbeam darts across the room, and the dust of the schoolroom is as hurtful as that of many manufactories. Dr. Barr, of Bury, Lancashire, has shown in an article lately published in the *Medical Press* that the air of badly ventilated board schools is three times worse than that of the worst-ventilated factory in his district.

In an interesting paper on "Headaches in Children," read at the International Medical Congress held in Washington some years ago, Dr. W. H. Day specially pointed out that these affections are very common amongst school children, and quoted, in support of this view, the statement of Professor Bystroff, who examined

more than 7,000 children in schools at St. Petersburg, and found headache in 11·6 per cent. of the whole number. The chief causes of headaches in school children are, according to these two authors, deficient ventilation of the schoolrooms, overtaxing the mental energies of the children (more particularly those of delicate build, or who are underfed), and defective vision.

Fröbel, who was born in 1782, was a pupil of Pestalozzi, and a contemporary with Lancaster. He left us the legacy of the Kindergarten.

Some time ago we visited in Paris a Kindergarten school containing sixty children, all girls, in two classes, from three to eight years old, and it was astonishing to witness how thoroughly happy the little ones appeared in their work. We saw them solve many of the elements of geometry, and prove by describing them that they were acquainted with the nature of curves, angles, planes, and spheres. All this they had learned without the aid of books, but merely in the form of amusing object-lessons. The little ones were not kept at any one subject more than fifteen minutes, and they had ten minutes' relaxation—*i.e.*, play—every hour, a very important hygienic consideration.

Let us hope that matters of such great moment as the diet and physical development of children, and the ventilation and other sanitary arrangements of schools, may not always be considered of less importance than the acquirement of so-called accomplishments, which are seldom brought into acquisition in after-life. W. A.

Death of Surgeon Parke.—We regret to announce the death of this distinguished African traveller, suddenly, on Sunday last. Dr. Parke was medical officer to the Emin Pacha Relief Expedition, and the trials and privations which he then went through, in that long and fearful journey, seemed to have undermined his constitution. He was born in 1857, joined the Army Medical Staff in 1881, and took part in the Egyptian campaign and in the Gordon Relief Expedition. His chief literary production was a work on the diseases incidental to Africa and their medical and hygienic management.

The Infectious Diseases Notification Act.—Dr. Orme Dudfield, medical officer of health for Kensington, has written to the *Standard* pointing out that this useful Act is only optional outside London, and that some towns, amongst them Brighton, and many rural sanitary authorities have refused to avail themselves of its provisions. Dr. Dudfield suggests that the present time would be an excellent one for the Local Government Board to seize upon as an opportunity for passing a short Amendment Act, making notification compulsory throughout the country.

REVIEWS AND NOTICES OF BOOKS.

AMERICAN SANITARY PERIODICALS.

The Dietetic and Hygienic Gazette (New York, 1218, Broadway), which has reached its ninth volume, not only sustains its position as a valuable monthly magazine of physiological and hygienic medicine, but is improved and enlarged. The chief article in the July number is "Considerations concerning Asiatic Cholera," by Dr. A. C. Abbott, of the Laboratory of Hygiene, in the University of Philadelphia. After describing the special micro-organism of cholera—the "comma bacillus"—and the manner in which cholera is transmitted from one person to another, Dr. Abbott points out the immense importance (as is the case also in respect of typhoid fever) of carefulness as regards the water supply, and of boiling all water before dietetic use, as well as milk; the obvious reasons for this precaution as to milk being either that it may have had contaminated water mixed with it, or employed for washing out the milk-cans. Dr. Abbott demonstrates to his countrymen, who dissolve ice in various beverages to an extent unknown here, the danger arising from this practice, seeing that the comma bacillus, like other bacteria, is not deprived of its vitality by freezing. He is particularly severe on domestic filters. "The best of them," he observes, "are reliable for only a few days, four or five at the most, and unless they are cleansed by scrubbing and 'burning out,' the condition of the water, from a bacteriological standpoint, after this period is far worse than that of the unfiltered water. The water, to be absolutely safe, should be boiled *after* filtration, and not *before*, as is commonly the practice." Dr. Abbott regards steam-disinfection as the best means of disinfecting clothing, bedding, and the like; but where such elaborate apparatus are not at hand, boiling water is equally efficacious, and he recommends that all bed-clothing and body-clothing should, immediately it has been removed from the bed or patient, be plunged into a large wash-boiler filled with boiling water.

"Aid the Health Authorities" is the title of a public-spirited article by Dr. A. O. Shakespeare, who gives an interesting description of the Sanitary League of the District of Columbia, established by the exertions of the distinguished American sanitarian Dr. John S. Billings, of the U.S. Army Medical Service. The objects of the Association are the improvement and preservation of the health of the residents in the district of Columbia, by the collection of data with regard to existing or threatened dangers to the public health, the diffusion of information concerning the best means of removing or preventing

such causes of danger, and by aiding, as far as possible, the proper authorities in their efforts to improve the sanitary condition of the district, and to prevent the introduction or spread of disease. The administration of the business of the Association is vested in a council comprising the principal officers and twenty-one other councillors, to be elected annually by the members from their own body. There are four standing committees, each consisting of five members, viz.—a Sanitary committee, a committee on Statistics, a third on Promotion of the Objects of the League, and a fourth on Co-operation, empowered to consult with medical societies, health officers, and other local authorities, so as to secure their advice and co-operation in the work of the League. House-to-house inspection returns have been issued, and also some excellent instructions on disinfection.

Amongst other articles are the following:—"Interrupted Pressure in Water Pipes Dangerous to Public Health," a subject which was thoroughly dealt with in *HYGIENE*, Vol. VII., No. 14 ("Constant *versus* Intermittent Water Supply"); "Quarantine, and the Necessity of a National Board of Health"; and "Periods of Incubation in Infectious Diseases."

The Journal of Balneology (New York, 26, Reade-street), devoted, as its name implies, to hydrotherapy and mineral springs, with the cognate subjects of climatology, electrotherapy, and dietetics, passed in June last under the sole editorship of Dr. Simon Baruch, previously one of the joint editors, whose name is a guarantee of the quality of the contents. The July number (July 15) has numerous articles dealing with hydrotherapeutics, dietetics, and the employment of electricity in the treatment of different affections. We are pleased to notice, in connection with the last-named, that qualified physicians have taken it out of the hands of quacks and unqualified practitioners, so as to base it on scientific principles.

Dr. W. F. Hutchinson's paper on Electro-clinical Work is very readable. One of his patients shows that, in the United States, as much as at home here, people sometimes fancy that they know best what treatment will suit them. An old farmer, Mr. A., aged 76, came from a distant locality on account of increasing numbness and stiffness of the legs, more recently extending to the arms. He was very anxious to be cured forthwith by electricity, so that he could take part in the coming haymaking season, the crop being "too heavy for the boys to handle alone." But it was evident that the patient was suffering from arterial degeneration, consequent on senile changes of structure, and that the heart's action was enfeebled by age and rheumatism. Seeing the nature of the ailment, and that electrical treatment

would have been, to use Dr. Hutchinson's words, "a mistake—the act of a charlatan," that physician declined to resort to electrical treatment, and advised the old farmer to let the boys get in the hay by themselves, and to remember that his age, in years if not in feeling, demanded rest. The sequel is not difficult to guess. "Mr. A. went away disappointed and wrathful—'Think I don't know what I want, eh?'—and I dare say has before this hunted up someone who will indulge him."

The Popular Health Magazine (Washington and New York) has made its appearance this summer, and is probably an outcome of the increased interest in hygienic matters evidenced by the formation of the Sanitary

League of the District of Columbia, in which Washington City is situated. It is a well got-up, readable, and cheap magazine, and No. 1 gives internal evidence of the probability that the *Popular Health Magazine* has "come to stay," as our Transatlantic brethren would say.

Amongst the contents are:—"The Health of our Cities," by Dr. J. S. Billings; "Asiatic Cholera," by Dr. William H. Welch; "Sanitary Reforms in Philadelphia," by Albert White Vorse, of the *Public Ledger* paper; "Pure Milk," by Dr. Charles S. Munroe; and "Cholera, Especially Regarded in its Effects amongst the Poor Classes," by Dr. Edward M. Schaeffer.

HYGIENIC NOTICE.

The Red Cross Ambulance is the name given by the inventor, Mr. John Carter, of New Cavendish-street, London, to a handy and useful contrivance for readily conveying injured or sick persons from one place to another.

Our illustration will give a good idea of its construction and the facility with which it can be put into immediate service. It will be at once noted that the ambulance can be moved by one person—of itself a great improvement over previously existing appliances of this kind. The amount of vibration is minimised by having the carriage mounted on semi-elliptic steel springs. The material of which the ambulance is constructed is light iron, with the view of diminishing the risk of infection; the cycle wheels are

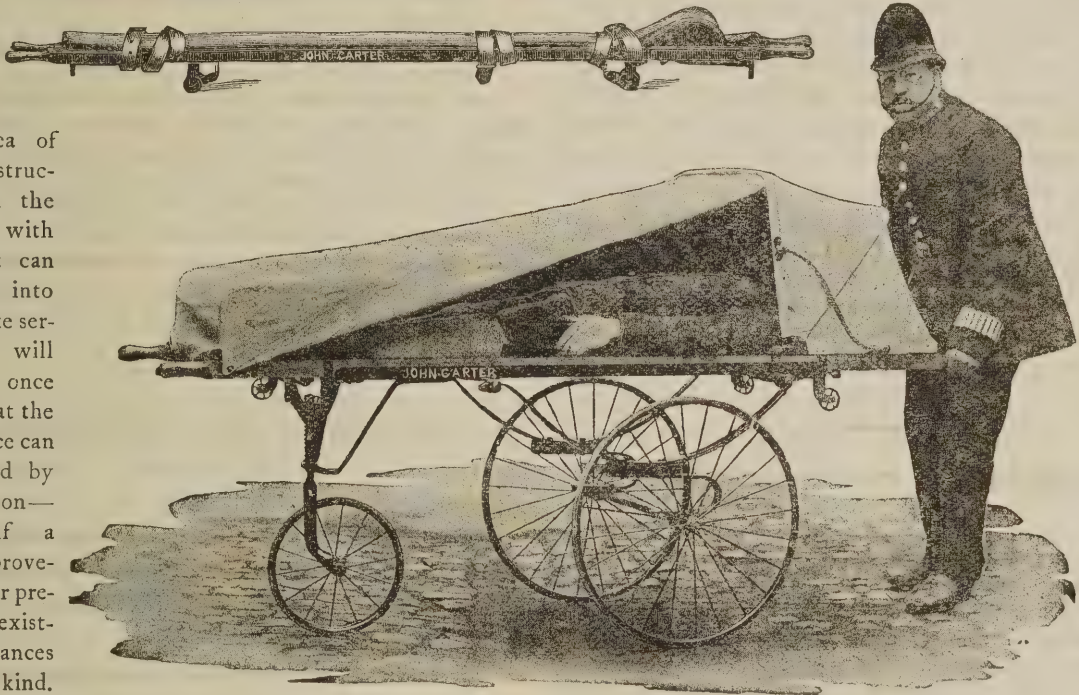
light, and run easily and smoothly; the platform of the carriage is a little wider only than the body of any one resting on it would be, thus economising lateral space, an important point when the ambulance has to be wheeled

through crowded streets or along narrow pavements; and a quickly adjusted hood, with a sheet-covering extending the entire length of the ambulance, insure freedom from

the inquisitive and annoying gaze of passers-by. The Red Cross Ambulance must soon come into general and extensive use, as it is the most perfect thing of its kind yet introduced.

The Model Night Lodging House erected by the London County Council in the neighbourhood of Drury-lane has proved the success that we prophesied it would. We are

glad to learn that the Council have it under contemplation to carry out the suggestion we made some time back, and to erect a similar establishment (greatly needed) for female lodgers.



NEWS AND NOTES.

The Cholera is now as prevalent a topic as it is an alarming one; and, although fortunately the number of cases in England have so far been small, yet there have been quite enough to bring home to everyone, but especially to persons in authority, the necessity of exercising the utmost vigilance. The worst feature of the present outbreak is the tendency of the disease to turn up in wholly unsuspected localities. So long as the cases recorded were at two or three large ports, people did not appreciate the danger. It was looked upon—indeed, made a subject of congratulation in the press—that so long as cholera was limited to these ports the disease was held at bay, and prevented from obtaining a footing on English soil. The occurrence of deaths from cholera at various inland towns—Leicester, Bradford, Gainsborough, Rotherham, etc.—has considerably abated the complacent tone of the press. In fact, already some of the daily and weekly papers seem bent on creating a panic. No possible good can result from this course; on the other hand, probably some harm.

* *

Fear often Kills, by depressing the vital and nervous power, and lessening the capability of resistance to disease. There is a quaint Eastern story illustrative of this. A sage was going out of a Persian city, when he encountered the spirit of Cholera about to enter. He ventured to address the dread visitor, and to implore him to be merciful. Cholera promised that he would accede to this prayer, and went on into the city, while the old sage pursued his travels. Some time afterwards the wise man again met Cholera in another part of Persia, and expostulated with him. "You promised me that you would be merciful when we last met; yet a thousand people died in the city." "I kept my word," said Cholera; "I killed only thirty; Fear killed the rest."

ANSWERS TO CORRESPONDENTS.

Patent alias Quack Medicines.—We have to thank numerous correspondents for their kindness in writing to draw attention to the fact that a singular blunder had been made by the printers in the heading of the article which appeared last week. The explanation and a corrected issue of the article will be found in our columns for the present date, Sept. 15. The correspondence which has thus arisen shows one thing conclusively, namely, that the interest in our exposures of quack medicines is very widely felt.

M. D. (Brighton).—We are much obliged for your letter. Seeing the extent to which medical men suffer in reputation and income from the false statements put forward by quacks, for the purpose of vending patent medicines, we agree with our correspondent that the least doctors can do to show their approval of our con-

tinuous efforts to expose quackery is to practically support HYGIENE by becoming subscribers, and helping to make the journal widely known.

R. B. (Manchester).—See HYGIENE for August 18 for article on the Effect of Reduced Working Hours in Factories.

A Sanitarian.—You can get the Act of Parliament you mention from Eyre and Spottiswoode, or our publishers would procure it for you.

W. T.—See answer to *M. D.* The subscription to HYGIENE for twelve months, commencing at any date, is only 6s. 6d., which includes postage of the fifty-two numbers.

Dr. Edmund M. Smith (York).—Communication received, and will be published very soon.

C. L. G.—An article on Warner's Safe Cure will appear in an early number.

A Student.—Part IV. (Vital Statistics) of the Public Health Series, published by E. and S. Livingstone, Edinburgh.

A Country Surgeon.—We can quite understand your patient being taken in by the quack's lying advertisement if his ignorance led him to speak of his ailment as "an *ulster* in his throat." Carlyle once said that "the stupidest person extant" doubtless existed somewhere, if we only knew where to search for him. We should not look beyond the ignorant dupes of the patent medicine vendors.

Mr. Procter.—The water of which you send a sample is certainly not fit for drinking or culinary purposes. Should you require a qualitative analysis, we can get one made for you.

W. J.—If you will forward your manuscript to the publishers of HYGIENE, they will advise you as to the best and cheapest mode of printing and publication.

Alpha (Cheltenham).—You are mistaken. The great physician who strongly recommended riding on horseback in the treatment of consumption in its earlier stages, or for the purpose of warding off that affection, was Dr. Sydenham, who died in 1689.

A. M. H.—Your case is not such a desperate one. There are a dozen medical men in your town, any one of whom would set you right in a month or six weeks.

EDITORIAL AND PUBLISHING NOTICES.

EDITORIAL.—The Editor begs to express his thanks to numerous correspondents, and to state that he will be pleased to receive any articles or correspondence coming within the scope of HYGIENE, books or pamphlets for review, reports of medical officers of health, items of general or local sanitary interest, newspapers (marked at the part to which it is desired to draw attention), &c.

ADVERTISERS are requested to bear in mind the greatly increased circulation of HYGIENE, with its weekly issue and reduced price. In addition to the large, regular circulation, many thousands of copies are distributed annually to sanitary officials, medical men, private addresses, public libraries, clubs, hotels, &c.

HYGIENE,

A SANITARY PAPER.

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THE LESSONS OF THE RECENT SMALL-POX EPIDEMIC.*

By EDMUND M. SMITH, M.B., C.M. EDIN., D.P.H.,
CANTAB.

ENGLAND has again been in conflict with a terrible enemy. Once more we have been face to face with the loathsome and appallingly infectious plague, the very name of which made our forefathers tremble, but about which the present generation knows, from experience, almost nothing, from book knowledge but little, while that little—it is to be feared—is but too often contradictory and unreliable. This dreaded foe, during the last twelve months or more, has effected such a general invasion of England as has not been known for many years. During the last twenty years we have heard, with comparative indifference (except in the towns infected), of occasional outbreaks of small-pox in London, Sheffield, etc., but during the last two years no less than 107 out of a total of 117 urban districts have been more or less infected by small-pox, with a total of some 7,000 patients up to date; 350 fresh cases per week during the past few weeks.

The spread of the epidemic, since the appearance of the first two cases at Dewsbury two years ago, has been slow, but its onward march has been steady,

* The thanks of the author are due to Dr. Priestley, of Leicester, and Dr. Guest Gornall, of Warrington, for the use of their official reports, and to Dr. Kaye, of Huddersfield, for the block of the accompanying illustration,

and in some districts its invasion has been very serious. It has not blazed forth all at once, like the cholera and the influenza, nor in accordance with the usual experience of scarlatina, or even of small-pox itself. Why then has its progress been so slow this time? Partly because our country is fairly well, but not fully, protected against it by vaccination. But its persistent appearance, first here and then there, notwithstanding compulsory vaccination, compels us to ask, Why should it be able to gain a foothold at all? The epidemic, as a whole, now appears to be steadily subsiding; but this is the usual occurrence with small-pox. It is most active from December to May, then from June it decreases, and is more or less quiescent. Quiescent, be it noted, for it is not for us to “halloo,” from a conscious sense of relief. We are not yet “out of the wood.” With similar circumstances, with similar play allowed to it, it may revive this next winter even more seriously. The recent epidemic has been closely and honestly watched by the guardians of the Public Health, who have had their eyes wide open, and who have studied out its progress and its lessons with unwearied zeal, in hospital, in private practice, and in conference. So there is now an unwritten “Book of Proverbs,” full of lessons and warnings, the immense importance of which cannot be over-estimated. It is a regrettable circumstance that the medical profession is not fully trusted by many people, the majority of whom, however, have strong prejudices, with but very little knowledge upon medical matters, and that scrappy and inaccurate. It is difficult for a medical man to

convince them, but we need use no flattery in assuring them that the Public Health is in the hands of a body of men whose intellectual and practical ability, patient, candid, and honest observation, it would be impossible in any sphere to surpass.

It is also deeply to be regretted that the Royal Commission on Vaccination was so far influenced by the opposition of the Anti-Vaccination party, that it recommended, in a report issued twelve months ago, that "the imposition of repeated penalties in respect of the non-vaccination of the same child should no longer be possible, and should cease to be inflicted altogether." So that, as Dr. Orme Dudfield has pointed out, "exemption from the operation of compulsory vaccination law (and incidentally the power to spread disease, deformity, and death among the community), would be purchasable in future by the payment of one single fine, one pound sterling." This recommendation, if ever carried out, would probably lead to incalculable disaster. As it is, it incites direct disobedience of one of our most salutary national laws; it incites Boards of Guardians to be lax in their duties as the custodians of the Vaccination Act, and as prosecutors of transgressors; it has compromised, with an ignorant and bigoted party, the law regarding the only protection against the most dreaded of all our epidemic diseases. It is consoling, to note, however, that now that anti-vaccinators have been face to face with this terror-striking foe, they have sought to be vaccinated and re-vaccinated by thousands.

To the present generation who know little or nothing, practically, about small-pox, nor about its outbreaks in the past—the most terrible and fatal of all recorded epidemics—nor about the revolutions produced by vaccination, the following particulars should be instructive and convincing:—

The death-rate in this country from small-pox during the years

1771-80 was 5,020 per million of all persons living;

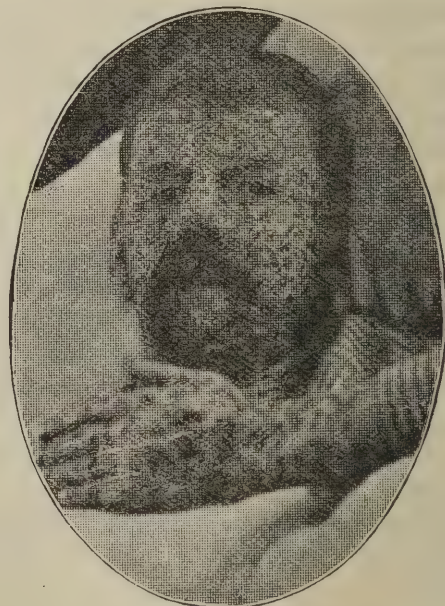
1838-53 (after the introduction and optional performance of vaccination) 513 ditto;

1854-71 (when vaccination was obligatory, but not efficiently enforced) 388 ditto;

1872-80 (vaccination having been compulsory since 1871) 141 ditto.

During this last period of years, the general death-rate has diminished 7 per cent., whilst the small-pox death-rate has diminished 50 per cent. (that of

children under five years of age, 80 per cent.). The small-pox death-rate amongst the vaccinated was 8 to 12 per cent., amongst the unvaccinated, 37 to 64 per cent., *i.e.*, for one death amongst the vaccinated, there were 44 deaths amongst the unvaccinated. The very marked reduction of the small-pox death-rate, compared with that of the other infectious diseases and with the general death-rate, together with our positive knowledge of the origin of small-pox, disproves the argument that the reduction in the small-pox death-rate is due merely to improved sanitary conditions. Were this so, the small-pox and other death-rates should somewhat correspond, which is evidently not the case. Further, the present generation should know, that, in addition to the hideous and loathsome state of body and the miserable sufferings during a typical attack of small-pox, in addition to the dangers of death from accompanying hæmorrhages and abscesses in all parts of the body, from inflammations of bone, eyes, ears, lungs, bronchi, heart and kidneys, gangrene, erysipelas, etc., small-pox may leave, as legacies, one or more of the following permanent results:—Loss of eyesight, hearing and smell, heart disease, chronic Bright's disease, lameness, falling off of the hair, and the well-known pitting of the skin. Could any other disease be, altogether and in so many ways, so detrimental in its results?



COPY OF PHOTOGRAPH OF A TYPICAL CASE OF SMALL-POX OCCURRING IN AN UNVACCINATED PERSON.

N.B.—The entire body was covered with a similar loathsome eruption. (Reproduced from *Public Health*, by permission.)

In the autumn lull in the activity of this disease, it behoves those responsible for the sanitation of our towns and country districts, those responsible for the promotion of wise sanitary legislation, and it behoves also the general public, not to fall into a condition of false security, but to study the lessons and warnings of this epidemic, to take them to heart and to act upon them. We now present these lessons and warnings in a concise form.

The first great lesson of the recent epidemic is to confirm, as emphatically as ever, the inestimable value and efficiency of vaccination as the one protective against attack by small-pox; and to prove that thorough vaccination in infancy effectually protects from small-pox, at least up to a certain age; that even after that age the vaccination in infancy always modifies the severity of a subsequent attack of small-pox; and that re-vaccination, at intervals, is necessary and effectual in securing protection in later life. This confirmation of the value of vaccination is shown by the following, amongst other and more elaborate reports of the recent epidemic. At Sheffield, we find that:—

Out of every 1,000 vaccinated children under 10 years of age, 5 were attacked by small-pox;

Out of every 1,000 unvaccinated children under 10 years of age, 101 were attacked;

The death-rate of the vaccinated was 0.9 per 1,000; that of the unvaccinated was 44 per 1,000;

Therefore, the vaccinated children had, as compared with the unvaccinated, a twenty-fold immunity from attack by small-pox, and a 480-fold security against death by small-pox.

With persons over 10 years of age:—

Out of every 1,000 persons twice vaccinated, 3 were attacked;

Out of every 1,000 persons once vaccinated, 1 were attacked;

Out of every 1,000 persons never vaccinated, 94 were attacked;

The death-rate in persons twice vaccinated was 0.8 per 1,000;

The death-rate in persons once vaccinated was 1 per 1,000;

The death-rate in persons never vaccinated was 51 per 1,000;

Therefore the twice vaccinated had, as compared with the unvaccinated, a 31-fold immunity against attack by small-pox, and a 640-fold security against death by small-pox.

During the epidemic at Liverpool, out of 194 cases of small-pox the death-rate was 7.7 per cent.

Amongst these were 170 vaccinated persons, with a death-rate of 3.5 per cent.; and 24 unvaccinated persons, with a death-rate of 37.5 per cent.

Of these 170 vaccinated persons, 7 were under 10 years of age, with a death-rate of 14.4 per cent.; and 163 were over 10 years of age, with a death-rate of 3 per cent.

Of the 24 unvaccinated persons, 11 were under 10 years of age, with a death-rate of 45 per cent.; and 13 were over 10 years of age, with a death-rate of 30.7 per cent.

Nearly all the persons who had been at some time vaccinated had mild attacks, whilst the majority of the unvaccinated had severe attacks.

In another town, Leicester (famous for its anti-vaccination agitation), we find that out of 146 cases of small-pox there were:—

Of adults, 89.	{	82, who had been, at some time or other, vaccinated. 7 altogether unvaccinated.
Of children under 15 years of age, 57.	{	7 who had been vaccinated. 50 unvaccinated.

Now, how is it that here, as elsewhere, there are so many vaccinated adults who took small-pox compared with apparently so few unvaccinated persons who took that disease? This is a question easily answered. Most of the adult population had been vaccinated as children (when the anti-vaccination agitation had not begun), or had been recently re-vaccinated, or had had an attack of small-pox during probably the epidemic of 1871-2 (an attack of small-pox protects more surely and more absolutely than vaccination, but with what infinite risks to life and limb!), there were therefore but few unvaccinated adults for small-pox to attack, and consequently we find that there were only 7 unvaccinated amongst those adults attacked by small-pox. The vaccinated adult population being much larger than the unvaccinated—with most of them, however, not wholly protected, as they might have been, by re-vaccination—we find the apparently large number of 82 vaccinated adults as having been attacked by the epidemic. But of these 82, only 6 had at all severe attacks, the great majority having very mild attacks; whilst all the 7 unvaccinated had severe, or very severe, attacks, and one died. These facts closely correspond with those of all the other towns.

As regards children, in Leicester about two per

cent. only of all the children born, get vaccinated at the present time, owing to the preponderance of anti-vaccinators, and the laxity of the authorities, and, therefore, the youthful population is greatly exposed to the ravages of small-pox. It will be seen that, out of the 57 children attacked by small-pox, 50 were unvaccinated. Of these, 44 suffered very severely, and 8 died, whilst all the 7 vaccinated children had extremely mild attacks. Of the total of 146 cases, 10 died, only one who had been at some-time vaccinated, an adult; and the remaining fatal cases, 9 (adults and children) had never been vaccinated.

The Warrington statistics are also very interesting.

Out of a total population of 2,424 persons living in houses invaded by small-pox, 22 per cent. were attacked, and $2\frac{1}{3}$ per cent. died. Of these 2,424, 663 were children under 10 years of age, of whom $7\frac{1}{2}$ per cent. were attacked, and 2 per cent. died, nearly all unvaccinated. The persons aged 10 years or upwards, numbered 1,761, of whom 28 per cent. were attacked (nearly four times larger proportion than in the case of the children) and $2\frac{1}{3}$ per cent. died (a percentage so relatively small, however, as again to confirm the fact, that vaccination in infancy mitigates the severity of the attack of small-pox which may happen in unre-vaccinated adult life). The Warrington statistics also show the immensely increased immunity against attack, and security against death, conferred by vaccination even all through life.

Out of the 2,424, of those vaccinated, 20 per cent. were attacked by small-pox; of those unvaccinated, 57 per cent. were attacked; of the vaccinated attacked, $1\frac{1}{3}$ per cent. died; of the unvaccinated attacked, 21 per cent. died.

Now, in all these statistics, those spoken of as vaccinated were set down as such, not entirely from their own statements, nor from those of their relatives, but from their still showing vaccination marks; and the reports confirm the fact, already well established, that the more the number, and the more distinct the appearance of the vaccination marks, the less susceptible is a person so vaccinated to attack by small-pox, and if attacked, the milder has been the attack. Hence, vaccination, to be as effectually protective as possible, should be done efficiently and thoroughly, *i.e.*, so as to leave not less than four good marks, covering a total area of not less than half a square inch. In this connection the public should take note, (1) that efficient vaccination marks never become

obliterated; (2) that efficient vaccination can be done on the arms quite out of sight, so as not even to spoil a lady's arm for wearing evening dress; (3) that the risk of inoculation of any other virus along with vaccine is at the present day practically *nil*; (4) that the occurrence of erysipelas is no more common with vaccination than with any simple scratch or wound; and (5) that severe fever and death from vaccination are quite unknown.

Another proof of the mitigating powers of vaccination is, that so much has it modified after-attacks of small-pox, that many cases of mild small-pox are difficult to diagnose at first from chicken-pox, and it has been recommended that cases of chicken-pox, in future, be notified to the Medical Officers of Health, like other infectious diseases, so that cases of chicken-pox resembling mild small-pox may be isolated, and placed under close observation.

Perhaps the greatest lesson of all of the recent epidemic is the necessity for systematic, even compulsory, re-vaccination, at least under special circumstances of danger. It is well known that the tissues of the body are constantly changing, decay and replacement being an incessant physiological process, so that within a few years—say, five to seven—the old tissues have completely wasted and have been replaced by new tissues. There is good reason to believe that such protection as some fevers confer upon those they attack passes away in time, owing to the process of tissue-change. One of the most acceptable theories about “protection”—and one probably true about most fevers—is that the germ of the attacking fever—be it scarlatina, measles, vaccinia, or small-pox—uses up, in the course of the fever, all that kind of nourishment (*pabulum*) in the tissues which supports its peculiar life, and that as soon as its pabulum is used up the germ dies, and the fever subsides. For some time afterwards—the length of time varying probably with individuals, susceptibilities and severity of fever-attack—the tissues are therefore exhausted as regards the particular pabulum which sustains the particular fever-germ, and that particular fever cannot get a footing with that individual again, until the years have elapsed in which tissue-change has more or less completely come about, whence that individual may again be more or less susceptible to its attack. Small-pox differs from all other infectious fevers, in that, for some inexplicable reason or other, it confers almost absolute protection for the remainder of

life. Now, vaccination causes a slight fever (*vaccinia*, or cow-pox, equivalent to a very mild, modified attack of small-pox), which seems to act in the way above described, and which leaves, if well done, in the individual vaccinated, an insusceptibility, an immunity, a protection against small-pox; this condition of immunity continues more or less absolute for some few years, probably until after one of the periods of physiological tissue-change, when the protection is partly or wholly lost. Therefore, in order to avoid attacks of small-pox (which even in its mildest forms, it must be remembered, may infect other persons very severely!) throughout life, it is now more certain than ever that occasional re-vaccination is essential.

(To be continued.)

PUBLIC HEALTH REPORTS.

Essex.—Dr. Thresh, who is the medical officer of health for the Chelmsford and Maldon rural sanitary districts, is also medical officer to the Essex County Council, and in this last-named capacity he has produced a summary of the reports for the past year of the district medical officers of health in the administrative county; comprising 21 urban districts, 14 complete rural districts, and parts of 5 other rural districts.

The county covers an area of 980,839 acres, and the census of 1891 showed an enumerated population of 579,355, almost equally divided as to males and females; there being 287,608 males, and 291,747 females. The number of inhabited houses in 1891 was 113,981, of uninhabited 8,040, while 1,020 were in course of erection. It will be seen from these figures that the density of population was 1.7 living person per acre; and that the average of persons to each house was 5.1. The calculated population of Essex at the middle of 1892 was 591,618, being an increase of 12,263 in the 15 months.

The birth-rate of the county exhibits a slight decrease as compared with that of the previous year, being 29.6 per 1,000 population; somewhat lower, too, than that of England and Wales for the corresponding period, *viz.*, 30.5 per 1,000.

The county death-rate for 1892 was 17.2 per 1,000 against 16.1 for 1891, and 15.7 for 1890; still, it was

1.8 per 1,000 below that of England and Wales, and in the previous year it was as much as 4.1 per 1,000 under the death-rate for the whole country. The comparatively higher death-rate in 1892, as against the mortality of the two preceding years, is attributed to the severe epidemic of influenza in the earlier part of 1892. Dr. Thresh points out that the death-rate in the rural sanitary districts was (as in 1891) higher than that of the urban districts; a peculiar circumstance which he considers as partly due to the greater prevalence of influenza in the villages than in the towns, and partly to the fact that far more attention is paid in the urban districts to water supply, sewerage, drainage, and sanitary matters generally, than in the rural districts. Thus, the death-rate in the whole of the rural districts, comprising a population, in round numbers, of 268,000, was 17.7 per 1,000, while in the urban districts (total population 323,000), the rate was 16.7. The death-rate is higher than it should be, when compared with that of another home county, Surrey, where the average mortality for the past three years was 14.5 per 1,000, the mean death-rate for the corresponding triennial period in Sussex being 16.3. Yet, in his report for 1892, the medical officer of health to the Surrey County Council observed—"It is not too much to say that, by a wise expenditure of public money, and by good sanitary administration, we might reasonably hope in the next ten years to reduce the average county death-rate by at least 2 in the 1,000." At this estimate, the Essex County death-rate ought, as Dr. Thresh remarks, to have a reduction of nearly 4 per 1,000, showing that there is room for very great improvement in the sanitary administration and sanitary condition of the eastern county.

The infantile mortality in Essex, for 1892, was at the rate of 128 per 1,000 births (much lower in the rural than in the urban districts), that of England and Wales during the same twelve months being 148, or 20 per 1,000 higher. In some districts, however, an excessive infantile mortality (deaths of children under one year of age) was noted; in four of these, Romford (rural district), Barking, Maldon, and Saffron Walden (urban districts), the rate exceeded that of England and Wales, being respectively 151, 152, 157, and 174 per 1,000 births. From other figures given, it is evident that there is no obvious connection between the birth-rate and the infantile mortality in the several districts named.

It would naturally be supposed that as such a large proportion of the county is situated on the London and Boulder clay-beds, while the southern and eastern parts of the county are low-lying, flat, and marshy, the mortality from consumption would be excessive. Such is not the case, however, for the phthisis death-rate of Essex in 1892 was 1.2 (being the same for both urban and rural districts), which contrasts fairly well with the average phthisis death-rate for England and Wales in the last ten years, which was 1.75. The death-rates from heart diseases and from lung diseases (bronchitis, pneumonia, and pleurisy) varied considerably in different localities; for the entire county, they were 1.4 and 3.9 as against 1.8 and 4.6 for England and Wales.

The principal zymotic affections prevalent during 1892 were scarlet fever, diphtheria, typhoid, and measles, the rate of mortality from which diseases was heavy in some districts; and the total zymotic death-rate in the rural districts was 1.15, in the urban districts 2.80 (making the average rate for the county, 2.17), as against 1.92 for all England and Wales. Speaking of zymotic diseases, it may be mentioned that every sanitary authority in Essex except Linton, part of which district is situated in Cambridgeshire, has adopted the Infectious Diseases Notification Act. Brighton and other places which have not yet adopted the Act will "please copy," as newspaper notices say, and bring themselves up to the mark in this respect.

Smallpox of a mild type has been increasingly prevalent during the past year. Writing on this subject Dr. Thresh fully endorses the opinions expressed by Dr. Edmund M. Smith in "Lessons of the Smallpox Epidemic," published in another part of the current number of *HYGIENE*, and gives the following sound advice:—"As vaccination and re-vaccination can alone prevent the extension of this disease, it behoves the Boards of Guardians who are entrusted with the enforcement of the Vaccination Acts to discharge their duties faithfully, and Sanitary Authorities should adopt proper means for the effective isolation of patients."

Similarly to London, Essex has suffered from scarlet fever in an epidemic form, the total number of cases notified being nearly twice that of the previous year. Fortunately the majority of the cases were of a mild type.

As regards typhoid fever and continued fever, the number of cases has been large, though they have

proved less fatal in their character. With reference to typhoid, seeing what an essentially preventable disease it is, its existence to such an extent throughout England is a disgrace to our boasted sanitary administration. Of various outbreaks in Essex, Dr. Thresh says that they were almost invariably found to be associated with polluted water supplies, or filth or other nuisances, which exist only because of the inactivity or apathy of sanitary authorities. The same remarks would apply to almost every county in England.

Measles and whooping cough have been two of the most fatal diseases of infancy and childhood during the past year, in Essex. When the Infectious Diseases Notification Act was framed, it was decided to leave these two diseases out of the list of affections to be compulsorily notified, though power was given to Local Authorities to add them, or either of them, to the schedule if desired. So far as we have opportunities of judging—and they are not inconsiderable—we believe that the majority of medical officers of health are in favour of including measles in the list, at any rate; but the question of expense commonly deters sanitary authorities from taking this step, so that, with "penny wise and pound foolish" policy, they leave matters as they are. If measles were placed in the list of zymotic diseases to be notified, people would be far more likely to estimate the actual danger to life resulting from measles, and many an outbreak could be checked before it had reached epidemic proportions. The frequency of the occurrence of measles and whooping cough is well illustrated by the returns from Colchester, where the urban sanitary authority has added both diseases to the schedule; out of 1,608 cases of infectious diseases notified, no fewer than 930 were of measles and 146 of whooping cough, making a total of 1,076, or two-thirds of the entire number.

With smallpox scattered in all directions, and with cholera threatening us, it will be interesting to examine to what extent isolation is provided for in the various districts of Essex. Barking, East Ham, Grays, Walthamstow and Woodford have no isolation hospital at all, but send patients suffering from smallpox to the hospital at Highgate, which might, however, be closed to them on any day. Chelmsford has leased two cottages at Galleywood for isolation purposes. Colchester has a small infectious diseases hospital with eight beds; nineteen

cases were admitted during 1892; a moderate charge is made for admission. At Halstead, the infectious diseases hospital consists of two 4-roomed cottages standing in an acre of ground. Harwich has some sort of isolation hospital at Dovercourt, but Dr. Thresh has received no description of it. Leyton: a temporary hospital of 15 beds, in which more than 70 cases of scarlet fever have been treated during the year. Southend possesses a house, in which 12 beds in 4 rooms are used for isolation; reported not suitable. Saffron Walden districts, both urban and rural, send infectious cases to the infirmary at the workhouse. Walthamstow, with a population of 50,000, had no isolation hospital whatever at the time of the report being made out, but an eligible site has been fixed upon, and it is hoped that before long Walthamstow will not be open to the serious charge of neglecting to make suitable provision for the isolation of cases of infectious diseases. Wanstead, like several other districts, sends smallpox patients to the Highgate hospital; a small hospital for isolation purposes is in course of erection. So much for the urban sanitary districts of Essex. Coming to the rural authorities, the following epitome represents their arrangements, or lack of arrangements, as the case may be. Billericay has a permanent building containing 4 wards with accommodation for 16 patients. Dunmow, Rochford, and Saffron Walden remove infectious cases to the isolation ward of their respective workhouses. Chelmsford, Tendring, and Maldon have tent hospitals ready for any epidemic. Epping has a wooden building about a mile from the workhouse; a full description of this was given in *HYGIENE* for May 13th, with an account of the benefit conferred upon the district. Cases occurring in the Halstead rural district are generally removed to the urban hospital; there is also a cottage where a few patients were received last year. Orsett has the most complete infectious diseases hospital in the county of Essex, standing in four acres of ground. Other districts in Essex have no means whatever of isolating persons suffering from infectious diseases; and it is obvious that any serious outbreak of cholera, smallpox, or other dangerous infections, would find the county generally in an unprepared state, in this respect.

As we have recently mentioned in other articles bearing on Essex, some parts of the county are supplied with water, of good quality, by different companies; but in the majority of rural districts the

supply has the two great faults of deficiency and liability to pollution; the latter condition arising from the only water supply being derived from shallow wells sunk in polluted subsoil, ponds, or ditches.

As regards the removal of sewage, many of the Essex towns have farms for the disposal of sewage by irrigation; these are Barking, Braintree, Chelmsford, Halstead, Ilford, Waltham, and Walthamstow. At Clacton and Southend, two seaside resorts, the sewage is discharged into the sea at some considerable distance from the towns. It may be mentioned that at the former place £10,000 are in course of expenditure upon the extension of the sewers and the improvement of the outfall; while similar, but still more extensive, works have been commenced at Southend.

The sewage of the urban district of Maldon is discharged into the tidal river Blackwater.

At Leyton, where there are separate drains for storm water, the sewage is treated with Hanson's sulphurous powder, and allowed to settle in a series of tanks, the effluent flowing into the sea; the sludge is pressed into cakes, about 120 tons being produced weekly, but there is such a small demand for this material as a fertiliser that the Local Board contemplate the erection of a destructor for burning it. The Saffron Walden sewage is also dealt with chemically, and the sludge made into cake, for agricultural purposes. At East Ham, a corresponding process of treatment and disposal is resorted to.

The rural districts are badly off in respect of sewerage arrangements. "The Spanish fleet you cannot see, because it's not in sight." So with the sewerage arrangements in many parts of the country, Essex forming no exception to the general rule. But if the sense of sight fails to discover the presence, that of smell commonly leaves no room for doubt as to the absence, of any proper system. "In most of the larger villages," says Dr. Thresh, "the house drains are connected with the road drains, which thus act as sewers, a purpose for which they were never intended, and for which they are totally unsuited. When slops and filth are spread upon the surface of the ground, the polluting materials are oxidised by the air and by the living organisms in the soil, but when passed into defective drains the filth percolates into the subsoil water almost unchanged, and so contaminates both soil and water, and indirectly the air. The sewage which reaches

the outfall of the drain is frequently discharged into some brook, rendering it foul, and in some instances such water is used for domestic purposes by people living lower down the stream." In numerous localities, too, large cesspits (rarely, if ever, cleared), closets without a proper supply of water for flushing, and "bumbies"—holes dug in the ground at the rear of cottages, for the reception of house-refuse—intensify the insanitary condition. Essex presents many object lessons of this kind, which may be summed up in three words—Epidemics made easy.

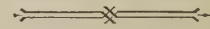
Overcrowding does not prevail to the same extent in Essex as in other counties which we could mention. The wonder is, that overcrowding should exist at all amongst the working-class cottages in rural districts, seeing that it is estimated that in the course of the last thirty years one out of every five farm labourers has disappeared, while the increasing number of large holdings, and the decreasing rate of wages, bids fair to extinguish this class altogether. It was recently stated in the daily papers that the farmers in East Essex had given their men notice of an intended reduction of weekly pay by two shillings, seemingly nothing to speak of, but a serious drop from the present earnings of 12s. a week.

One is disposed, in face of such a fact, to ask the question, "Is life worth living?" though not with the same grim business humour as an undertaker at the East End of London, who put a notice in his window, headed with this known query, adding the distinctly original remark, "Why worry? When you can have a first class walking funeral for 37s. 6d. at the establishment of——."

But houses, like men, are apt to wear out and go to decay, especially if not properly maintained, and, consequently, if the quantity comes up to the mark, the quality falls very much below it. Dampness, deficient ventilation, and dilapidation, are terms which occur in the reports of the various medical officers of health almost with what Shakespeare styled "damnable iteration."

Speaking of these gentlemen, we are pleased to conclude this article with a testimonial to their zeal and energy in the fulfilment of their duties, often rendered difficult and sometimes disagreeable by the circumstance that there exist in their districts persons of local standing and position who use their influence, not for the purpose of benefiting the community, but to impede and thwart every movement intended for the public good. Men of this

narrow-minded, self-opinionated stamp always hold sanitary improvements in abhorrence, particularly if these should interfere with the sacred rights of property. Nothing would tend to strengthen the hands of the district medical officers of health in the important county of Essex so much as the appointment of a permanent County Medical Officer of Health, and we know no one better fitted for this post than Dr. Thresh, who is already medical adviser to the County Council.



CHOLERA : ITS NATURE, CAUSES, SYMPTOMS, AND TREATMENT.

(Concluded from Page 256.)

THE reader will pardon us for introducing the following passage.

"Although," writes the late Dr. S. S. Roden of Droitwich, "the waters of Droitwich are said to have been used in the times of the Romans, their medicinal and curative properties were not fully known until the last century. Attention was first prominently called to their efficacy, as an external application, in the first severe visitation of Asiatic cholera in 1832. This discovery was so striking that I venture to relate it. Droitwich, like many other places, suffered severely from the outbreak, and people died so rapidly and suddenly that a panic seized upon the inhabitants, and great difficulty was experienced in getting anyone to wait on those who were attacked. The disease was looked upon as so infectious that to approach any of the stricken was to insure infection to oneself. Under these circumstances a cholera hospital was extemporised out of a disused salt-works; still, difficulty remained in inducing anyone to take charge of it. At length a man and his wife were found willing to undertake the management; the man's duty was to fetch the patient, take him to the hospital and prepare a hot bath, and, when a man, to bathe him, and then put him in bed; and when a fatal result occurred, to convey the body to the cemetery. On the wife devolved the duty of nursing, administering medicine and nourishment to, and bathing female patients. On one occasion a patient being brought during the night, there was no hot water; under these circumstances the man fetched buckets of boiling brine

from a neighbouring salt work. The effect upon the patient was to resuscitate him; the skin became warm, the voice and pulse returned, and he rapidly recovered. The result amazed even the medical staff, and henceforth during the epidemic the hot brine bath was used in every case and with the most favourable results." Sir Charles Hastings was at the time a constant visitor to Droitwich, and his attention being directed to the marvellous results of the brine bath, his philosophical mind saw how valuable the application might prove in the treatment of many diseases, and with characteristic energy he advocated opening public baths, with the result that in 1836 the first was opened. These soon obtained great local celebrity, and considerable numbers of persons came from different parts of the county.

Let us dwell at some length on the premonitory diarrhœa. Dr. Austin Flint, of New York, proved that in 45 cases of true cholera, it existed in 34 instances, and was absent in 11, but in London in 1848-9, the premonitory diarrhœa was not wanting in a single case in 3,902. Michel Levy found it absent only six times out of 142 cases in Paris. Now this premonitory diarrhœa, though reckoned by many observers as a stage of the disease, is generally now considered to be nothing of the sort, while again during the prevalence of epidemic cholera many people suffer from diarrhœa who do not have the more deadly complaint. Nevertheless though the ablest authorities do not consider that the diarrhœa, which so often precedes the deadly disease, has anything to do with it, it is during the prevalence of that affection that medical treatment is effective, and when during the prevalence of Asiatic cholera it is neglected the mortality is immensely greater.

No doubt some reader will contend that since diarrhœa nearly always precedes the true disease, and as the disease spreads with the rapidity it does, it must be connected with diarrhœa and be infectious. On both points medical opinion is wholly against him, and the startling rapidity with which the complaint runs its fearful course and the simultaneous outbreak of cases in many different places is held to prove that it is not infectious, but if admitted to be infectious it must be so to a degree far more marked than scarlet fever or small-pox to explain its rapid diffusion, while on the other hand, cases imported into localities, where the disease had not before prevailed, do not always, nor even frequently, lead to its diffusion. Nevertheless, all said and done, it is

perfectly obvious that the disease is spread by the diffusion of some contagion; the distinction is a fine one and may well perplex the layman. Again, some great authorities hold or held that the premonitory diarrhœa is essentially choleraic; this opinion is held, we believe, by the famous Dr. Pettenkofer.

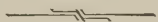
Epidemics are commonly confined to large towns, not, it is said, extending into the rural districts, but it may be that this is an error, and 2,000 deaths in a great city may not bear a larger ratio to the population than two deaths in a village or little country town. Mild diarrhœa or cholérine prevails, however, commonly in the country as well as in the great centres of population at such times, and not a few of these cases of cholérine terminate in death.

Nothing is easier than the treatment of the premonitory diarrhœa, and a few drops of laudanum several times a day, with camphor, or small doses of the tincture of kino, or catechu, or krameria, or some simple salt of morphine, or powdered opium in pill with tannic acid, will generally be found efficacious. The great thing is to employ effective remedies at once in the early stages of the complaint, and then remedies are usually successful.

In the fully developed and terrible disease itself, of what service is the best treatment? Sometimes morphine injected subcutaneously will prevent the spasms, but even the most persistent and energetic administration of drugs seems to give poor results, and when once developed one may say that it is almost beyond the reach and control of art. Yet one cannot doubt that the physician must continue to ply his remedies with zeal, and with wisdom. His patients will expect him to do so, and he will feel that he is doing something to relieve the sufferer, even if the affection should have passed into the incurable stage.

From what goes before the reader will see that our contention that a great deal has been learnt about cholera is perfectly true. The experienced practitioner could write a book on the subject, although he would have to admit that he is completely in the dark as to many of the important matters connected with the subject. The layman will still ask, what is cholera? Why, and how does it spread? Is it infectious? Is the premonitory diarrhœa a stage of the complaint, or a different disease altogether? As for the successful treatment of the fully developed disease, much remains to be learnt. Surely, we may hope that the day is not far distant when the disease

will have to confess the power of man, and when it will be as easy to cure it as it appears to be, under some circumstances, to prevent it. But even with our extended knowledge, and despite the discoveries made of late years bearing upon this disease, Asiatic cholera continues to be one of the most awful and mysterious scourges of the human race.



REVIEWS AND NOTICES OF BOOKS.

After Many Days. By J. JOHNSON LEAK. London: Beaumont & Co., Savoy House, 115, Strand. 1s.

This novel, the scenes of which are laid in the north of England and the Isle of Man, sustains its interest from beginning to end. The principal characters go through various vicissitudes and trials, but as all comes right at last, *After Many Days* has good claims to the title which Mr. Leak, who is well-known as a writer in this field of literature as well as a journalist, has bestowed upon it. The moral is good, like the plot, and the book is one which everyone could read with interest and pleasure.

"Juggins," a Dog's Life. By H. S. M. London: Beaumont and Co., Savoy House, 115, Strand, W.C.

This little sixpenny book, illustrated with a full-page engraving of the sagacious animal whose eventful career it describes, is opportune at this season of the year, when all the boys and girls are at home from school, and a difficulty sometimes occurs in finding amusement for them. At such moments, Juggins who, amongst other canine occupations, has played an active part in circus performances, cannot fail to amuse and occupy the youngsters' attention with the graphic account of his numerous adventures.



WINE.

WINE is commonly described as "the fermented juice of the grape," yet it is not always so when we consider how much stuff is sold as wine which is perfectly innocent of any acquaintance with the produce of the vineyard. Some time back it was recorded in this periodical that the Municipal Laboratory of Paris, whose function is to detect adulteration, had caused 15,000 casks of so-called wine to be seized by the authorities. The official analysts could not find in the whole lot a single drop of grape-

juice; but what they did discover were as follows:—Water, alcohol (none of the best, the reader may be certain), glycerine, sulphate of gypsum, salts of potash, &c., and berries for colouring. Could any compound be more villainous, or more remote from the generous properties of sound, honest wine?

Speaking of colouring reminds us that the juice of every grape is white; there being only one solitary exception to this rule, *viz.*, the Pontac grape. The colour of red wine is derived not from the juice, but from the skin of the grape. Three-fourths, or even a larger proportion, of champagne is made from red grapes, which, if allowed to ferment with the skins in the vinous fermentation, would give red wine as the result, similarly to the produce of other red grapes; the *œil de perdrix* (partridge-eye) colour noticeable in champagne, commonly associated with good vintages, is imparted to it unintentionally, in consequence of the grapes being ripe to bursting when gathered, so that the colour from the skin slightly tints the pulp. A marked instance of this occurred in the famous vintage of 1874.

Every wine-growing country puts forward some claim in favour of its own production, and amongst critics, where so many different tastes are concerned, the old Latin proverb, "*Tot homines, quot sententiæ*"—So many men, so many opinions—holds good. One will talk enthusiastically of Champagne, another will be rapturous about Chianti, a third will boast the virtues of Burgundy, and so on; but Mr. Webber, a high authority on these matters, asserts that Port is the finest of all red wines, and that Sherry is the finest of all white wines, basing his opinion on the fact that these two engender naturally, in the process of fermentation, a larger proportion of alcohol than other wines, thereby denoting greater power to develop quality, ethers, &c.

It is to the volatile ethers which age develops in wine, particularly when in bottle, that the flavour and the highly-prized aroma, technically termed "bouquet," are due; and their formation is the result of the action of the alcohol generated during fermentation upon the bitartrate of potash contained in the grape juice.

The authority just quoted (Mr. Webber) says, in his interesting little book on wine:—"Sweetness in wine may be compared to charity in human nature—it covers a multitude of sins." Yet how many persons insist on giving the preference to sweet, rich

wines, with the result that, owing to the circumstance that saccharine matter is more difficult to digest in combination with wine than in any other form, acidity and indigestion are sure to be produced, and these, sooner or later, make way for rheumatism and gout. Saccharine articles of food, if used to excess, will have a similar effect, though not to a corresponding extent.

Taking one hundred degrees to represent proof spirit, the following figures will represent the percentage of alcohol contained in different wines, or, in other words, their relative strength:—Port, 36 degrees of strength; Sherry and Madeira, 34; Burgundy, 19 to 20; Champagne and Claret, 15 to 18 per cent. The five principal spirits, Brandy, Whiskey, Gin, Rum, and Hollands, are generally sold by merchants at from 10 to 20 degrees under proof (licensed victuallers being allowed to sell them at as low a standard as 33 degrees under proof); consequently, one glass of good brandy mixed with one and a half glass of water would be equal in strength to two and a half glasses of port, or rather more.

The keeping property of wine is due to tannin, which is obtained from the skin of the grape during fermentation. The greater astringent properties of red wines as compared with white wines is owing to the circumstance that the skin of red grapes contains a larger proportion of tannin.

The practice of drinking champagne has grown much of late years, and is still on the increase; but it must not be overlooked that the habitual use of champagne in excess is more injurious to the nervous system than almost any other habit. We happen to know at the present moment two cases in which men of previously strong constitution have become hopelessly stricken with insanity through the excessive use of champagne as a beverage. The younger the wine, the more likely is this result, which takes the form of imbecility, through softening of the brain. Moral: Buy the best champagne, and don't drink too much of it.

The fashion of drinking champagne has reached almost absurd limits. People do not object to paying six or seven shillings a bottle for champagne not four years old, when the same money would buy a ripe, good wine of any description ten to fifteen years old at least; yet the same individuals would grudge half of this sum for a bottle of port or sherry, and even a fourth of it for claret. The consequence is that the

latter wines fall into further disfavour because so many hosts put inferior qualities of them on their tables.

It is curious to consider how much mere accident may influence the national consumption of any article of food or drink. The commencement of the now exploded habit of port-wine drinking to a large extent dates from the year 1703 when, by a reciprocal reduction of tariffs, the English Government made the duty on port one-third less than that charged on the wines of other countries, the Portuguese conceding a corresponding reduction as regards our woollen goods. This led to the gradual substitution of port for French wines, which many years afterwards suffered a greater check during the long period of war between England and France, leading to the further encouragement of the wines of Portugal, as well as those of Spain, with both of which countries England was on friendly terms.

Of late years clarets have come more into fashion, and this may in some degree be attributed to fiscal reductions; moreover, the vintages in the claret districts are carefully conducted upon the most scientific principles, while in Spain and Portugal the wine growers, being mostly small farmers, continue in many instances to make their wines according to the primitive methods practised by their forefathers for many generations past.

As the general use of wine has increased, other countries than those from which our supply was formerly obtained have entered into competition, and two of our colonies, the Cape and Australia, are shipping larger quantities to the mother country every year. The latest of the new competitors is Servia, which possesses in various parts great natural advantages for viniculture, and sent an interesting collection of wines to the Paris Exhibition.

In choosing what wines to drink it is important to take into consideration the wide range of difference between the dietetic properties of inferior and superior kinds of wine bearing the same name, and therefore, to the uninitiated or careless, nominally identical. In this, as in other instances, it will be found that the best is the cheapest in the long run, because it gives the most ample value for money, where a judicious selection has been exercised. By the way, the British Pharmacopœia recognises only one wine, namely, sherry, in the composition of different remedial preparations. Speaking of the pharmacopœia in this connection, reminds us that the old *London*

Pharmacopœia, issued by the College of Physicians, contained, under the heading of *Mistura Spiritus Vini Gallici*, excellent directions for the preparation of egg flip, a most agreeable beverage in cold weather.

The icing of wine, previous to its use, is objectionable from a hygienic point of view. Indeed, it requires very little consideration to convince any reasonable individual that it must be injurious to take into the stomach a quantity of fluid artificially lowered in temperature, especially when one is in a heated room, or after taking food. Further it may be remarked that icing wine conceals the defects of inferior sorts; in fact, it baffles the power of ascertaining either its bad or its good qualities, owing to the extreme coldness partially or entirely blunting the sense of taste. The most perfect temperature for wine is about 60 degrees, and this condition may be attained by bringing the wine out of the cellar into the dining-room a moderate time before it is used. Sparkling wines may be brought direct from the cellar when required, as the risk of expanding the carboic acid gas contained in them is thus minimised, and the excuse for icing them is then done away with.

At the commencement of this article, we spoke of the adulteration of wine. One of the substances frequently employed in tampering with wine is salicylic acid, which exists naturally in different species of the willow (*Salix*) and various plants. Commercial salicylic acid is obtained from coal tar, like many other products of modern chemistry. This compound possesses anti-fermentative powers, and has therefore, of late years, been much resorted to for the purpose of checking the fermentation of young wines sooner than this process would be completed if not interfered with. By resorting to its use, a dishonest manufacturer or merchant is able to perpetrate a great fraud upon the purchaser, and it is therefore prohibited by law. In addition, it exercises serious effects upon the health of the consumer, as it acts as a powerful depressant upon the circulation and nervous system.



Lunacy.—The Commissioners in Lunacy for Scotland report in favour of the probationary liberation of patients who have shown decided improvement in the asylums, without waiting for complete cure.

DO CATS SEE IN THE DARK? BY THE REV. R. A. CHUDLEIGH, M.A.

THE eye is not yet made which can see in absolute darkness; consequently even cats require some small quantity of light. But the quantity that enables them to see is so very small as to be virtually darkness to creatures whose eyes are not furnished with the very singular apparatus called *Tapete lucidum* (the shining carpet). It is simply a tract of reflecting surface placed like a concave mirror at the back of the eye-ball, by which the scattered rays which enter the pupil from all sides are caught and reflected back through the pupil. And it is remarkable that in all the species which possess it, this natural reflection is so shaped and placed as to throw out the concentrated rays on to that spot where the habits of each animal would make the light most useful.

Thus in the ox and sheep, the rays are brought to a focus near the mouth and nostrils, manifestly the spot where grazing animals would like the light turned on. Thus bulls had "bulls' eyes" before the police, and used them in the same manner. In the dog and cat the rays are not brought to a focus so near to the mouth. These creatures must scan objects much more distant than the grass at their feet, and consequently the rays are projected from their eyes forwards and downwards and in nearly parallel lines. Thus the stream of light is available for much greater distances than if the rays came to a near focus and crossed and were dissipated.

In the horse this tapete lucidum is well developed. It is so placed as to combine the advantages of the eye of the ox and the cat, that is to say, the outer side of the reflecting surface sends rays downward and inward, evidently to help it to see its food; while the inner side throws the rays downward and forward, thereby securing a much wider sweep.

Fish and birds have no tapete, though we should have expected an exception in favour of owls and night birds. Rats and mice have none either, which seems rather hard, seeing that their enemy the cat is so well provided.

It will have been noticed that in all cases the rays have been described as being reflected downwards. This is the same as saying that the tapete lies high in the eye-ball. There is one noteworthy exception, the giraffe. In this animal the tapete is placed low and reflects the rays upward. But the giraffe feeds above its head; so in this case also the light falls where it is most useful.

NEWS AND NOTES.

London Water Supply.—The Royal Commission on the London water supply have come to the conclusion that for the next forty years the watersheds of the Thames and the Lea will be equal to providing for the wants of the rapidly growing metropolis. From the evidence which has been placed before them they assume that 40,000,000 gallons of water may be obtained daily from the wells and springs in the chalk bed of the Lea Valley without affecting any "material interests"; that the wells in the chalk bed south of the Thames, in the district of the Kent Water Company, will give an average quantity of 45,000,000 gallons a day; that 52,000,000 gallons may be abstracted daily from the River Lea, and as much as 300,000,000 gallons from the Thames, without materially affecting the flow of those rivers. These figures show a total of 437,500,000 gallons daily, equal to 35 gallons per head for a population of more than twelve millions. Another conclusion at which the Commission have arrived will certainly be a surprise to many of our readers, *viz.*, that they consider the water now supplied to London as of excellent quality. We hope that the sanitary authorities will not be induced by this statement of the Commissioners to disregard the fact that both the Thames and the Lea are exposed to innumerable causes of contamination, many of which must increase with the growing populations above the intakes of the various water companies unless stringent measures are adopted.

Cholera.—The worst feature of the reports during the past week is the intelligence that numerous cases have occurred at Hamburg, where such a serious outbreak happened last year. A few cases have been reported from different parts of England.

The Increased Consumption of Tobacco was strongly marked last year, being reported by the Commissioners of Inland Revenue to be more than a million pounds over that of the year 1891. The increased consumption has gone on steadily, in a greater ratio than that of the population, ever since 1887, when the duty was reduced to the extent of 4d. per pound. The amount now consumed per head annually averages 1 lb. 10- $\frac{5}{8}$ oz.

Derby.—The Town Council have applied to the Local Government Board for sanction to borrow £3,158, in order to add a new pavilion to the infectious diseases hospital or that borough.

Huddersfield.—The Local Government have authorised the Corporation to borrow £30,000 for the purchase of

land for making a sewage farm, £16,000 for other works connected with sewage, and £16,000 for expenditure on paving and electric lighting.

The Long Drought is making itself felt in many places, and great anxiety is caused by the low state of the water in the local reservoirs. At Birmingham a public notice has been issued urging the necessity of economising water and avoiding waste.

The Cholera Bacillus has formed the subject of some curious experiments lately at the Vienna Institute for Pathological Experiments. Six persons swallowed the comma, or as it is commonly called the cholera, bacillus in a fair quantity. These six enterprising persons were two doctors, two medical students, a private gentleman and a man-servant, and they were all placed under the observation of Professor Stricker. Two out of the six did not suffer any impairment in their health, one had headache and slight feverishness, two had slight attacks of diarrhœa, and one was out of health for a week. None had cholera. These experiments serve to show that the greatest danger of contracting the disease is when people are placed in insanitary conditions in addition to exposure to infection.

Longton.—The Town Council have resolved to expend £3,650 on the purchase of land and the erection of a destructor, and £1,500 on a site for a hospital for infectious diseases.

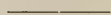
Not Reduced to Water-Drinking.—An amusing story is told in connection with Mr. Bailey Denton's visit of inspection into Somersetshire. Some shallow, muddy pools, hollowed in the lias formation, formed the only water supply of a certain village. When he arrived there, Mr. Bailey Denton was horrified at the mud-holes whence, he presumed, the villagers obtained their drinking-water. Turning to the hale old native who acted as his guide, Mr. Bailey Denton exclaimed, "Is this the water you drink?" "What did you say, zur?" was the surprised reply, and the question had to be repeated more than once before the Somersetshire man could grasp its drift. At length he did so, and, with a burst of hearty laughter he cried out: "Oh, Lard bless 'ee, noa, zur; we doan't drink no watter down here; we've got plenty of good zider in Zummerzet!"

A Wholesome Fruit.—Speaking of apples, Professor Faraday said, there is scarcely any article of vegetable food more widely useful and more universally liked than the apple. A raw, mellow apple is digested in an hour and a

half, while boiled cabbage requires five hours. The most healthful dessert that can be placed on the table is baked apple. If taken freely at breakfast, with coarse bread and without meat or flesh of any kind, it has an admirable effect on the general system, often removing constipation, correcting acidities, and cooling off febrile conditions more effectually than the most approved medicines.



ANSWERS TO CORRESPONDENTS.



An Anxious Mother.—You could not do better than give the infant Benger's Food. It is a preparation which is capable of assimilation and digestion by the most delicate children, and has received the unanimous approval of the medical profession. It can be obtained of any respectable chemist.

M. O. H.—Thanks for your suggestion, also for your kind efforts to bring *HYGIENE* under the notice of your medical friends and patients. We have good reason to believe that the medical profession appreciate our systematic exposures of quackery, and we do think it only right to look to its members for practical approval and support, which they can best show by becoming subscribers, and inducing their friends to follow their example.

Anti-Cosmetic sends us a cutting from a weekly paper exposing Mrs. Anna Ruppert. We have already made her Skin Tonic the subject of analysis and report in "Patent *alias* Quack Medicines," No. ix. (new series) published in *HYGIENE* for July 14th.

A Surgeon (Brighton).—See reply to *M. O. H.*

B. S. (Manchester).—Nessler's Test is useful in detecting ammonia in water, and thus arriving at an idea of the extent of pollution.

Querist.—Artificial fruit essences are often objectionable, from a hygienic point of view. The so-called essence of Jargonelle pears is a spirituous solution of the acetate of amyl. When impure, as is usually the case, it cannot certainly be described as harmless.

Bromo-Phosph.—We have received a communication from Dr. Broom, Clifton, concerning this patent nostrum. We should be glad of information concerning it from any of our readers.

Dr. R. N. Ingle (Bedford).—We have no special articles on the two matters named, though both have received attention at different times. Excessive smoking was dealt with in an early number of *HYGIENE*, but it is out of print. The practice of cycling is very apt to

produce stooping and subsequent deformities in young people, and in the case of girls pelvic injury must occasionally result. We should be glad to hear further from you on the subjects named in your letter.

Mr. Preston (Sheffield).—We do not know any publication with the title you mention,—"*Hygeia*."

Mons. Desmarest (Paris).—Should you experience any further difficulty in getting *HYGIENE* from your French bookseller, our publishers will supply it for twelve months, post free, for 6s. 6d.

Dr. Thomas.—We shall be glad to receive a detailed report from you when your various engagements admit of your writing one.

A Total Abstainer.—The fourth and concluding part of the series entitled "*An Age of Stimulants*" will appear in an early number of *HYGIENE*. The articles which have already been published will be found in *HYGIENE* of the following dates—June 30th, July 31st, August 11th. The author is Dr. J. Murray Gibbes, of Mooropna, Victoria, Australia.

A County Councillor.—The Public Health (Water) Act is very definite on the matter of sufficient and wholesome water supply, and the powers of County Councils to take upon themselves the duty of providing such supply in villages and elsewhere, if the owner of the property fails to do so.



EDITORIAL AND PUBLISHING NOTICES.



EDITORIAL.—The Editor begs to express his thanks to numerous correspondents, and to state that he will be pleased to receive any articles or correspondence coming within the scope of *HYGIENE*, books or pamphlets for review, reports of medical officers of health, items of general or local sanitary interest, newspapers (marked at the part to which it is desired to draw attention), etc.

ADVERTISERS are requested to bear in mind the greatly increased circulation of *HYGIENE*, with its weekly issue and reduced price. In addition to the large, regular circulation, many thousands of copies are distributed annually to sanitary officials, medical men, private addresses, public libraries, clubs, hotels, &c.

HYGIENE,

A SANITARY PAPER.

VOL. VII.]

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[No. 20.]

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HYGIENIC HINTS FOR HOUSEHOLDERS.

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EVERYBODY theoretically values health: most people practically disregard it. Hence the obstacle to popularising sanitary science: because people do not bring it fairly into their daily thoughts. Yet the present greatly improved state of curative medicine is due, in a very considerable degree, to sanitary science: to the more careful observation of the natural action of natural forces, both in the living body and externally to it. Much has also been effected in the application of the principles and rules of sanitary science to the improvement of towns; but much remains to be done. With these preliminary remarks I will proceed to make some observations intended to be useful to householders.

The Sources of Bad Smells in Houses.—Most people are content with their habitations until they perceive a bad smell; then their trouble begins. Poor people, I have repeatedly observed, generally attribute a bad odour to some defect in their own houses, but rich people often cast the blame on their neighbours' houses. This arises from the occasional difficulty in detecting the source of the evil, and from the repugnance which a rich man feels to admit that after the pains he may have taken to perfect his drainage and ventilation, he has spent his money in vain. The first step towards the correction of a bad smell is to find out the cause of it, which is not always an easy matter. It may proceed from a sink-pipe, a water-

closet, a water-pipe, damp walls, the sodden soil of the basement, or a crack in a gaspipe.

Traps.—Many people are quite satisfied if they have trapped their drains, and it is a common answer to a complaint as to an unpleasant odour to say that "the drains are all well trapped." This is a delusion. Traps depend for their efficiency upon the water they hold, and if this is allowed to evaporate in warm weather there is practically no trap at all; or if the water contained in the trap be fouled by the absorption of sewer gas the trap becomes a means of diffusing poison; in fact, some traps seem to be designed for the purpose of accumulating dirt and noxious gases. The common "dipstone trap" is one of these. All traps should be freely and frequently flushed to prevent their becoming offensive, and it should be a maxim with householders that a trap will not keep itself clean.

Forces Causing the Spread of Sewer Gas.—Mephitic gases pass from drains into a house through three principal causes, namely: pressure, temperature, and diffusion. The pressure of sewer gas is but small, and water traps are constructed upon the assumption of this slight pressure. A difference of temperature between a house and a drain is a more frequent cause than pressure, and the sudden discharge into a drain of any heated fluid will lead to a rise of the sewer gases. Gases also diffuse themselves in accordance with a well-known chemical law.

Stench Pipes.—In order to carry off the foul gases generated in a sewer, a stench pipe is often erected against a house, the pipe running from the drain up

o a height of several feet above the roof of the house, and the drain being trapped on the side next to the house. The reason for this is that it is thought that the pressure would be sufficient to force the gas up, say sixty feet of piping, but this is evidently an erroneous opinion. As already stated, the pressure of sewer gas is exceedingly small, and no adequate force exists, while, as to temperature, that would vary so much that no reliance could be placed upon it. In cold weather the draught would be downwards as in an unused chimney, and the sewer gases would be condensed in the pipe, and at all times, even the most favourable to the action of the pipes, the mixture of the gases with the air would occur so low down the pipe that very little noxious gas could escape. Very little advantage, therefore, can be expected from these stench pipes. Sewer gas could not ascend the shafts in the majority of days of the year, and even if it did on days of exceptional temperature, the pipes could not conduct away sufficient gas to ventilate the sewers. The true protection against sewer gas consists in frequent flushing with an abundance of water, free dilution of the gases with atmospheric air, and numerous ventilators placed at the crowning parts of the sewers.

Waste Water-pipes.—Formerly waste water-pipes were connected with the drains to obviate the nuisance of accumulations of water upon the surface of the ground, but now it is the practice to have them disconnected. It is expedient that waste water-pipes and sink-pipes should be trapped at both top and bottom. The lower trap should be a valve trap opening only in the direction towards the drain, and closing again by its own weight, on the principle of the “block trap” in use at the mouths of drains.

Neglect of Traps and Dustbins, Dampness of Soil, &c.—A very common cause of “bad smells” in houses is the carelessness of servants. In order to more easily get rid of refuse matters they remove the bell-trap from the sink-pipe, and an offensive effluvium is immediately perceptible throughout the house; or they throw dirty water into waste-pipes and omit to flush them. Dustbins are allowed to remain uncovered, so that their contents become wet and sodden, and give off disagreeable odours; or vegetable matter is allowed to lie and rot in them in moist, warm weather. Dark cellars are often made the recipients of garbage and rubbish of all kinds not

otherwise easy to dispose of, and as cellars are commonly damp, a fusty, fetid smell is the inevitable result. There are other causes of offensive odours, the most enduring and persistently annoying of which lie deep in the structure of the house. The most frequent of these is the soakage of the foundation with sewage. Many of the old and, in other respects, best houses in the metropolis, were built on the bare clay, and were provided with brick drains and cesspools. Wherever this arrangement of drains and cesspools has existed, it will often be found that the bricks have been loosened at the base of the drain and have fallen in, and that the cesspools have overflowed; further, that rats have bored holes in every direction, thus increasing the mischief. The consequence of all this has been that the surrounding soil has become saturated with sewage. When this could no longer be borne, it has often happened that a jobbing bricklayer has been called in to lay down new pipe drainage, and the following is something like a description of the way in which he has set about it:—He has carried his new six-inch pipes along the course of the old drain on the already black, fetid soil as far as the area, where he has fixed a dipstone trap; besides that he has done nothing but allowed the old brick drain to remain in connection with the sewer. He has not even, perhaps, lowered his level in order to get a good fall; and the nuisance has remained as bad as ever, owing to the workman's ignorance and bungling. Unfortunately such a case as this is not of an isolated character; for it has been a common practice with many “scamping” or ignorant workmen. The old soil should have been cleared out, and the pipes laid in concrete, with a good incline to the sewer. While the earth in the basement is allowed to remain sewage-logged, there must be “bad smells” in the house. The only permanent remedy is to remove the old soil and foundations, and replace with new, cover over with concrete, insert glazed bricks into the wall, and line with Portland cement.

Water Supply.—The water supply of London demands serious attention. So long as cisterns are used, they should be provided with charcoal filters to purify the water before it is consumed; or, better still, a filter should be fixed upon the pipe between the cistern and the tap from which the water has to be drawn for consumption. One important *desideratum* with regard to water for house purposes is a constant

instead of an intermittent supply. The only reasons why a constant supply is not universal are to be found in the activity of water companies in looking after their own interests, and the apathy of consumers in looking after theirs.

There should be a more ample supply of water than is now given to the public. The sewers rarely contain more than a few inches of fluid; and deposits are apt to accumulate in consequence of there not being an adequate flow. When foul gases arise from the sewers, the fault is often due to the thousands of private drains which are insufficiently flushed, especially where the drains are of considerable length or connected with houses peopled by many persons.

The Regulation 2-gallon flush for closets, under the provisions of the Metropolis Water Act, 1871, is insufficient, and the Local Government Board would do well in issuing an order increasing the minimum amount of flush to three gallons, as is the case now in Edinburgh and Bradford.

Further, the water supply of London is defective, by reason of the very large proportion of it which is derived from the river Thames. The time will, doubtless, come, when the importance of this fact will be more fully recognised, and when, as a consequence, the Metropolitan supply will be obtained from the practically inexhaustible natural reservoirs situated beneath the chalk, within thirty or forty miles of London.

In conclusion, then, I would assert that four things are wanting as regards our water supply—a larger quantity, greater purity, better appliances, and unity of administration. The separation of the water supply from the public administration of the drainage system, and leaving the former in private hands, is a mischievous incongruity, which has arisen out of the piece-by-piece legislation concerning sanitary affairs. The water supply should be everywhere, as it now is in some of our large towns, in the hands of the public authorities.

M. O. H.



PATENT ALIAS QUACK MEDICINES.*

By the EDITOR.

NO. XV. (NEW SERIES).—WARNER'S "SAFE CURE."

* Some of the articles constituting this series have already appeared in *HYGIENE* when published as a monthly magazine, and were reprinted in two volumes. But as one of these—Vol. I.—is out of print, we propose, at the request of many readers,

THE Saturday Review, in a very long and eulogistic article, comments upon our exposures of popular patent remedies. "The method of exposure employed has been simple yet drastic. The nostrum has been submitted to analytical examination, and in each case has been discovered to be a preparation of well-known ingredients, *well-known* not to possess the properties claimed by the vendors for their secret compositions. 'Clarke's Famous Blood Mixture or Purifier,' for instance, consists, says Mr. Stokes, the public analyst, of iodide of potassium, chloric ether, potassium hydrate, and coloured water. To claim for this combination that it is a never-failing and permanent cure for scrofula is—to put it with a decent restraint not noticeable in Mr. Clarke's advertisements—a little extravagant. The assertion, therefore, made by the proprietors of the Blood Purifier, apparently without fear of contradiction, that that medicine is the only cure for consumption, diabetes, dropsy, deafness, and paralysis, is an over-bold one. 'Mother Seigel's Syrup,' 'Sequah's Prairie Flower,' and Holloway's Pills can jointly cure everything and can severally make a good job of most things (at any rate so their manufacturers unhesitatingly suggest). But the man of scales has reported on them and for the future in unimaginative minds they can only be credited with the virtues of their one active ingredient, Aloes. The triumph of the editor of *HYGIENE* has been complete." *The Saturday Review* goes on to descant upon the rise and fall of quack remedies, and the difficulties in the way of attempting "to make laws for the effective protection of the pockets of the gullible." "Quacks have been, and quacks will be,

to commence a new series, as much of the matter will doubtless be fresh to the great majority of the readers of *HYGIENE* in its altered form. New reports and analyses will appear from time to time. No. I. (May 13th) included:—Patent Medicines; Patent Medicine Law; Mattei's Electro-Homœopathic Remedies. No. II.—(May 20th), Clarke's Blood Mixture. No. III.—(May 27th), Clarke's Blood Mixture; Chlorodyne and other Opiates. No. IV.—(June 9th), Revalenta Arabica. No. V.—(June 16th), The History of Patent Medicines; The Sequah "Prairie Flower" and Oil. No. VI. (June 23rd) Holloway's Pills and Ointment. No. VII.—(June 30th), Correspondence about Holloway and Mattei. No. VIII.—(July 7th), Concerning Advertised Testimonials of Clarke's Blood Mixture. No. IX.—(July 14th), Allen's World's Hair Restorer; Mexican Hair Restorer; Singleton's Golden Ointment for the Eyes; Rowland's Kalydor and Gowland's Lotion for the Skin; Mrs. Anna Ruppert's Skin Tonic; Mattei's Electricities. No. X.—(July 28th), Quack Advertisements and Testimonials; Mother Seigel's Syrup; Clarke's Blood Mixture and the late Dr. Swaine Taylor. No. XI.—(August 11th), Clarke's Blood Mixture; the Alleged Testimonial from the late Dr. Swaine Taylor, F.R.S.; the Obverse and the Reverse. No. XII.—(August 23rd), Quacks' Testimonials; Mother Seigel's Syrup; Clarke's Blood Mixture. No. XIII.—(September 1st), Beecham's Pills. No. XIV.—(September 15th), Pink Pills for Pale People.

and there will always be a public ready to heed them, and happy to pay them," observes the *Saturday Review*. "Admitted," we reply; but our argument is that the British Government, for the sake of obtaining an annual addition of some £200,000 or so to the national income, by the issue of patent medicine stamps, tolerates and even endorses quackery, for many, and especially ignorant people—not always of the lower classes—are foolishly deluded by the Government stamp and the word "Patent" into a belief that they convey a sort of guarantee of quality. As to laws for protecting the gullible, the unwary, and the ignorant, such exist in connection with every other mode of imposture. Nor would any elaborate legislation be needed. If an individual buys a pound of coffee, to which chicory has been added, he has his legal remedy under the Adulteration Act, unless the dealer has previously placed upon the packet a legible printed label showing that the contents are not pure coffee, but coffee and chicory mixed. In the same way, instead of shrouding a quack medicine in mystery—*Omne ignotum pro magnifico* is the theory of many people—and lending it a fictitious value by affixing an official stamp, let the Government pass a short Act of Parliament, similar to the legislation which prevails in various continental countries, requiring the contents of every bottle, box, or packet of quack medicines to bear a label stating its real composition. People generally are getting more educated than they used to be, and education is the deadliest foe that quackery can have. Would any man or woman of sound mind and even very moderate education, if he or she learned from the printed label on a patent medicine, that it consisted of water, aloes, and carbonate of soda, with a few drops of the tinctures of capsicum and myrrh,* be likely to give credence for one moment to the preposterous assertion of its vendors that "thus compounded" (we copy this statement verbatim from the prospectus accompanying a bottle of Sequah's stuff, sold at the rate of a shilling an ounce, seven-eighths being water, and the other ingredients the commonest and cheapest of drugs) "PRAIRIE FLOWER is undoubtedly far and away the best remedy ever yet introduced for all sorts of complaints and other CHRONIC DISEASES." The capitals in this singularly worded extract are, we need scarcely say, not our own, but those of the compiler of the prospectus, who evidently acted on

the vulgar rule that when anyone tells a lie he should tell a big one and stick to it.

There was once an American quack pill, whose discoverer and inventor—quacks are remarkable people, for they invariably discover and invent, according to their own version, things which have been known ever since the world began—claimed for it the meritorious qualities that it didn't "go fooling about, but settled down steadily to business"; and we fear that our readers will accuse us of the one, and charge us with not doing the other, unless we forthwith say something about Warner's "Safe Cure." "Safe Cure," indeed! That is what its inventor and discoverer would probably, in his Trans-Atlantic vernacular, call "a tall order," if the nomenclature emanated from anybody else. Still, it is not absolutely original; years ago there flourished a music-hall celebrity, one Mr. Stead—we hasten to explain; not the gentleman of that name who poses as the champion of Mattei and his watery electricities, white, red, and green!—who jumped himself into fame as the "Perfect Cure."

We have before us an analysis of the "Safe Cure for Bright's Disease, etc.," of which we will give particulars. During a recent illness, as at other times, Shakespeare has been a frequent companion, and it was when reading one of Shakespeare's works that Warner's "Safe Cure" came into our mind. An extraordinary concurrence of ideas, some will remark, and difficult to account for; yet they should remember that it has been paradoxically asserted that the improbable often becomes the possible. Macbeth thought himself on the safe side when he more than hinted at the physical impossibility of the removal of Birnam Wood to Dunsinane, but he had to own up to his mistake very soon afterwards. Which play of Shakespeare was it that suggested the "Safe Cure"? Our publishers do not find it necessary to stimulate the circulation of HYGIENE by giving away pounds of tea or other bonuses to subscribers, or offering conundrums for competition, so that there can be no excuse for delaying the answer—"King Henry IV.," wherein Hotspur makes mention of his prisoner's decided objection to "villainous saltpetre." Of course, seeing that the prisoner had just run a narrow risk of losing his life in the battle, the epithet he made use of was excusable; otherwise it might seem rather too strong a term to apply to what is, and has been for centuries, quite a common article of commerce. How would

* See analysis of Sequah's Prairie Flower Mixture in HYGIENE for June 16th, 1893 (Vol. VII., No. 5.)

Colonel North, the uncrowned Nitrate King, like to hear anyone speak of nitre in such uncomplimentary language? But we did not happen to think of him. We thought of Warner, and of what a lot of saltpetre there must be in his "Safe Cure."

We were right, too, for an analysis specially made for us of this proprietary medicine, by Mr. A. W. Stokes, F.C.S., F.I.C., public analyst, revealed the fact that three hundred and fifteen grains of saltpetre were contained in a sixteen-ounce bottle. Sixteen ounces! Rather a stiff quantity of physic, this. Warner and Co. think so too, evidently, for they make the boast, "Our bottle is the largest 4s. 6d. bottle in the market." We will not attempt to disprove this assertion, but we should have preferred its being half the size and half the price, as we bought it, not for home consumption, but with the view of sending it to our analyst. If a "largest bottle" craze should seize upon the nostrum-loving public, we may expect eventually to see further developments in this direction on the part of other patent medicine vendors, such as notifications announcing "on tap," "in the customer's own jug," and "small casks for family use."

The dose recommended by Warner and Co., is a tablespoonful, *i.e.*, half an ounce, six or eight times a day. Eight doses would equal four ounces; four ounces, multiplied by four, equal sixteen ounces, and hey, presto! in four days the largest bottle in the market has been emptied, and gone with its contents are four shillings and sixpence, good and lawful coin of the realm.

Now, what has the purchaser had for his money, besides 315 grains of nitre, *alias* saltpetre, *alias* nitrate of potash, the value of which anyone, curious on this point, can ascertain at the nearest drysalter's? Why, Mr. Stokes tells us that, in addition to water and the aforesaid saltpetre, he extracted from the sixteen ounces of fluid one and a quarter ounce of glycerine, half an ounce of burnt sugar or treacle, two ounces of rectified spirits, a few drops of oil of winter-green, and a vegetable extract bearing resemblance to extract of liver-wort. He could not find any alkaloid, or any of the usual drugs employed in the treatment of Bright's disease. "My belief," he adds, "is that the nitre is the only active ingredient present."

We cordially endorse Mr. Stokes' opinion, and we also believe that any person who would attempt to treat such a fell disease as that which Warner and Co. profess to eradicate with either saltpetre or gly-

cerine, or burnt sugar or treacle, or rectified spirits, or oil of wintergreen, or extract of liverwort (the two latter in such small quantities that we should have to seek the aid of fractions to enable us to calculate the amount taken for a single dose) would not have so much difficulty as Dogberry experienced ("Much Ado about Nothing") in getting himself written down an ass.

If wintergreen and liverwort do not show up in any large proportions, the same cannot be said of spirits, which constitute one-eighth part, or $12\frac{1}{2}$ per cent. of the whole quantity; yet there is no disease in which more care should be exercised as to the use of alcohol than in Bright's disease.

It goes almost without saying that Warner and Co. issue, broadcast, circulars dilating upon the paramount necessity of everyone who feels out of condition at once proceeding to drug himself with their preparations. "The doctors cannot cure you—this they admit," Warner and Co. dogmatically affirm in one of these pamphlets. A bad look out for every man or woman who is, or fancies that he or she is, not in health. Yet, there is a silvery lining to every cloud—or rather, in this instance, a particularly brassy one—for this consolation to the afflicted speedily follows:—"Treat yourself with Warner's Safe Cure, and live." "All that the medical faculty can do is to make dying people comfortable." "Thousands of people die every year from supposed apoplexy, convulsions, heart disease, paralysis, gangrenous erysipelas, and other quick-ending disorders, when in reality they are the victims of chronic Bright's disease. As their physicians cannot cure it; they, therefore, to cover their inability, attribute death to other causes." And so on, till we are lost in amazement at the mean, despicable falsehoods that some people will be guilty of, to make money; for the object of these pamphlets, dropped into family letter-boxes, and given away indiscriminately, is to promote the sale of the "Safe Cure."

One of these pamphlets, left at our private house some time back by a man who was distributing them throughout the district, contains an earnest invitation to those into whose hands it may fall, to forward by parcels post a six-ounce sample bottle of their urine to H. H. Warner and Co., Limited (Medical Department), for examination; the charge made being 2s. 6d., "barely sufficient to cover the cost of chemicals."

What is a humble half-crown compared with

"long practical experience, involving the examination of *many thousand* samples annually"? But how can Warner and Co. get through this amount of chemical and microscopical research, and to whom do they entrust such responsible duties? Mr. Warner's valuable services cannot always be relied on.

Even if his health, however much fortified by nitre, syrup, etc., did not break down under the continuous strain imposed on him, he must at times be absent. It is not long since we read in an American paper that he was then at Rochester, State of New York, superintending his "mammoth yeast" business, and making arrangements for bringing out Warner's "Safe Baking Powder," which he assured an interviewing reporter, who straightway blazoned the circumstance in a "mammoth" puff article, would be as far in advance of the powders now upon the market" (the "largest bottle" is already there) "as our 'Safe Remedies' are above the vile imitations and substitutes which are offered in their stead."

Really, after what we have learned from Mr. Stokes' analysis, we would just as soon have vile imitations and substitutes as "villainous saltpetre." Do the English directors of H. H. Warner and Co., Limited, conduct many thousands of urinary analyses annually? Hardly likely, we should imagine, that they would undertake scientific experiments on such a gigantic scale. Certainly not, and, on looking through the pamphlet again, we came to the conclusion that "the physicians employed in our Medical Department" must be the persons who, during Mr. Warner's unavoidable absence, owing to the demands of yeast and baking powder on his attention, carry on the laboratory work. This does seem cool, not to say cruel, conduct. In one paragraph the sufferer is told in the most positive language that doctors cannot, and admit that they cannot, cure him, and at the best they can only enable him to die comfortably; in another, that "our physicians will gladly give the benefit of their knowledge, free of cost." If we believed in all that Warner and Co. said, we should estimate the benefit (?) of their physicians' knowledge as appraised in the preceding sentence at its exact value, *viz.*—*Nil*.

But their "physicians" are not the guileless philanthropists that Warner and Co. would have us imagine. A letter was shown to us not long since, written to a young man by "our physicians," or one of them—in their impatience to benefit humanity,

Warner and Co. have omitted to inform the public as to the strength of their medical staff, or even to give the names of their doctors—in which the following paragraph occurs:—"Charge for the month's treatment is £4 4s. If a second month's treatment is necessary, charge is £3 3s." With this letter was enclosed a printed consultation form, containing some of the nastiest suggestions that could be put into a youth's head. Presuming that the fee was considerably dropped every successive month, in the same ratio, our young friend calculates that the fifth month's treatment would have been literally "free of cost." But it will never reach that stage, and even the Parcels Post six-ounce package and the half-crown for bare expenses, will never pass the portals of H. H. Warner and Co., Limited. We cheerfully gave the benefit of our knowledge and advice, free of cost, as they would say, in the single word indelibly engraved on our memory by *Punch* in his advice to young people on another subject,—*DON'T*.



THE LESSONS OF THE RECENT SMALL-POX EPIDEMIC.

BY EDMUND M. SMITH, M.B., C.M. EDIN., D.P.H.,
CANTAB.

(Concluded from page 269.)



As to how often re-vaccination should be done is a somewhat arbitrary point, but it may be laid down:—

1. That imperfect vaccination in infancy should be compensated for by a complete re-vaccination within the first five years of life.
2. That persons, even completely vaccinated in infancy, should be re-vaccinated every five to seven years afterwards, whether small-pox be prevalent or not. This should be maintained at any rate until small-pox is stamped out, and is really not a formidable arrangement.
3. That during any continued general prevalence of small-pox, everyone, child and adult alike, especially those who are more liable to be exposed to infection, should be re-vaccinated not less than every four or five years. With many people the operation would not "take" so often, but it should nevertheless be given every chance to do so, so as to secure its consequent protection.

There is a very great deal to be said for re-vaccination being made compulsory, as it is only

when such means of public security are made compulsory that the uneducated, the careless, and the prejudiced will give any thought *pro bono publico*. Re-vaccination is compulsory and systematic throughout Germany, with magnificent results, especially in its vast army, in which not a single case of small-pox has occurred since the compulsory re-vaccination began, in 1874. Certainly, at the very least, re-vaccination should be made compulsory in this country, for all persons who have come, or who have to come, into contact with cases of small-pox. Thorough vaccination and re-vaccination are the only means by which a community can ever hope to get rid of this dangerous disease, and "not a stone should be left unturned" to secure that end, both by rigorous law and by individual temporary inconvenience. It should further be noted that re-vaccination which has been done several years since should not be relied upon as absolute protection. Persons who have so trusted to remote re-vaccination have been deceived during the recent epidemic. Hence occasional repeated re-vaccination is wisest. But if delayed until after actual contact with a case of small-pox, be it a mild or a severe one, re-vaccination performed at once or within three days will prevent an attack of small-pox by anticipation, or will at least materially mitigate its severity. Take one instance of the value of re-vaccination as proved during the recent epidemic. In a small Lancashire town, 202 families, comprising a total of 788 persons, were exposed to infection from cases of small-pox occurring amongst them. Of this number of persons, 76 were already protected by vaccination within the five years previous, or by re-vaccination, or by previous small-pox attacks; and 563 were re-vaccinated on this occasion. These two groups (constituting 149 families) amounted to 639 persons. Amongst all these, no second case of small-pox occurred in the family. But, on the other hand, of 145 persons, (exposed by cases in 25 families), who refused re-vaccination, or upon whom it was performed too late, 42 took small-pox!

Let us now go back to the question, why does small-pox now gain a foothold amongst us at all? Why does it,—notwithstanding such general vaccination,—still continue to give us occasional trouble, and break out so widely as during the past two years? How does it spread from place to place, and from person to person? Why is it not totally extirpated? These are questions about which the

recent epidemic teaches us some important lessons, while it also confirms some important previous conclusions.

Small-pox will continue to trouble us:—

1. So long as so many infants are imperfectly vaccinated. One or two marks only will not suffice.
2. So long as so many people decline or evade vaccination and re-vaccination. In 1889, at Leicester, Gloucester, and Keighley, over 80 per cent. of the children had never been vaccinated.
3. So long as people are careless or indifferent as to personal sickness of an obscure character.

We know of many mild attacks of small-pox of recent occurrence, that have been considered by the patients and their relatives to be "only chicken-pox," either in ignorance, or because they had no more sense of the public safety than to evade medical attendance, notification, and isolation. Their excuse was that they "did not wish to have the Medical Officer of Health to bother them"! Such have escaped detection until they have been traced as the direct origin of quite severe cases of small-pox. It is well for their sake, as well as for that of others, that people so inclined as these should be reminded that such conduct makes them liable to a penalty at law, and that it may be difficult for them to prove their "ignorance".

The very few people upon whom vaccination and small-pox confer little or no protection, are so small in number that there is no need to dread their being an appreciable danger to the community.

The chief medium by which small-pox has spread about during this epidemic, has been that curse of our country,—vagrancy. Here is the sort of thing that has happened over and over again. A vagrant somehow contracts small-pox and sickens with it at the workhouse, or common lodging-house. All the inmates with whom he has come into contact, before the discovery of the nature of his illness, have been thereby exposed to infection and may carry infection about to other inmates, to other towns, and to other houses, personally and by their clothes, even if they do not sicken with small-pox themselves. And fortunate has been the town, or the lodging-house, where such a first case was not followed by others, or by quite an outbreak. Now the great evil connected with the spread of the disease in this way is that the Authorities have no power to detain, at workhouses or at lodging-houses, any suspicious patients, or to detain or to re-vaccinate those who

have been exposed to infection by coming into contact with doubtful or declared cases of any infectious disease. The vagrants are all free, therefore, to spread the disease at their own uncontrolled will. So that, owing to the defective conditions of the Law, our sanitary officials are powerless to prevent the spread of small-pox by vagrants. Again and again these infected vagrants have refused the kindest offered quarantine-detention and re-vaccination, although at one Union, be it whispered, a bribe of one shilling per head overcame all opposition to re-vaccination and thus saved the town the danger of an outbreak. Obviously, this weakness of the law involves great danger to the community at large, and it is to be hoped that some such remedies as the following will soon be enforced all round. They are receiving some consideration at present. The Sanitary Authorities should have power:—(a) to prevent vagrants from entering an infected district, and to arrest any offending in this respect; (b) to systematically examine all vagrants on entering the Union House; (c) to keep up strict inspection of inmates of Union Houses and of common lodging-houses; (d) to compel vagrants to report their next place of destination before leaving the vagrant ward or lodging-house where they have stayed for the night; (e) to closely watch, even by night, the incoming and outgoing inmates of common lodging-houses, and to compel each to have a free bath, with separate fresh water; (f) to isolate at all Unions, all doubtful and suspicious cases of illness; (g) to detain all vagrants who have been, in any way, exposed to infection, until after the completion of the incubation-period of the disease, *viz.*, twelve to fourteen days; (h) to compel re-vaccination of all such, and disinfection of their clothing; (i) to compel re-vaccination of all the inmates of a Union casual ward; (j) to permit the further travelling of vagrants, only by passport; (k) to watch all migratory persons other than vagrants.

Every sanitary authority should obtain such compulsory powers immediately, in advance and in anticipation of any such outbreaks as the recent one. It is of no use delaying, "shutting the stable door after the horse has been stolen". These compulsory powers should be obtained at once, so that, when needed, they will be ready for instant use, and if they are little required after all, no harm will result from adopting proper precautions.

Again, small-pox, like every other infectious fever, will continue to spread about, so long as there are

urban and rural sanitary authorities who have not yet adopted the Notification of Infectious Diseases Act, of 1889. It is high time that this Act was made compulsory throughout the United Kingdom; prompt notification of all infectious diseases to the Medical Officer of Health, by housekeeper or nurse, or by medical attendant, or by both. There is no ground for wonder that districts worked without this Act are often troubled with serious outbreaks of infectious disease, as their Medical Officers of Health are considerably hindered, without the Act, in the prompt detection, and arrest of such outbreaks. This hindrance is fraught with incalculable mischief to the community concerned, and indirectly, indeed, to the whole country. The best thing to be done is to make the Notification Act compulsory by a short Act of Parliament throughout the kingdom, and thus give no option as to its adoption by local authorities. The German Government, ahead of us again, is now proposing such a compulsory measure, and wisely includes, also, the notification of suspected as well as of proven cases of infectious disease. Small-pox was kept down in London in 1892, absolutely, by means of this system, and by the resultant prompt isolation and disinfection.

Small-pox is also likely to flourish so long as the provision of separate small-pox Hospitals, (with ambulance, disinfecting apparatus, &c.), is so utterly inadequate as at present. During this epidemic it has been found, for instance, in Lancashire, that there exists only one-fourth of the hospital accommodation required, and the majority of the different sanitary districts have either very insufficient apparatus, or none at all. In another instance,—a fever hospital,—it is obvious that the accommodation of only 40 beds for a population of 90,000 is absurdly inadequate for an epidemic of any kind.

Regarding Isolation Hospitals for small-pox, the following points may be laid down as essentials, or at any rate, as highly desirable:—

1.—That every urban and every rural sanitary district ought to be provided, in anticipation, with a separate, fully adequate Hospital (with all necessary appurtenances) for small-pox cases only,—in addition to an ordinary fever hospital. When small-pox is treated in ordinary fever hospitals it has been observed that it is apt to infect the patients suffering from other fevers, and *vicâ versâ*. Several such instances have occurred during the recent epidemic. Therefore it is

positively necessary to have a separate small-pox hospital.

2.—That such hospitals should be built at least a mile away from any considerable aggregation of dwellings. The epidemic of 1893 proves the previous conclusion, that a hospital or dwelling in which small-pox is under treatment is no small source of danger, if it be near to, or in the midst of, a well populated area, the danger diminishing, however, in proportion to the distance from the hospital. Whether this spread of infection is by means of the air, or by prevailing winds, or by persons passing to and from the hospital, is a matter of much present debate. The aerial theory has much evidence to support it; and there is little doubt but that the air, or the wind, plays some such part for greater or lesser distance, as it is on record, for instance, that small-pox infection has travelled from a small-pox ward across seventy intervening yards of open air-space to a scarlatina ward.

3.—That these hospitals should therefore be placed in quite a rural situation, but it is desirable that they should be built, not upon a dismal waste, but on a cheerful breezy site, hilly if possible. Let the hospital be made attractive in appearance; everything should be done to minimise the reluctance and dread which patients, and their relatives, have as regards their removal thereto. This dread is often very marked, and forms one of the great difficulties in obtaining prompt isolation of infectious cases in hospitals, though they are certainly the most practicable places for that purpose.

4.—That in the case of small-pox hospitals already built near a well-populated area, and indeed in all future-built hospitals, much may be done to diminish aerial infection therefrom, perhaps totally abolishing its probability, by:—(a) making the windows air-tight; (b) letting in fresh air by properly designed inlets; (c) conducting the “bad air” of the wards through a furnace, so as to destroy all its infectious contents, before allowing it to pass into the outer atmosphere; (d) disinfecting all sewage before it is allowed to pass away from hospital precincts.

5.—That all these hospitals should be provided with separate rooms for disinfection of the out-going patients and of their clothing, and separate rooms for the observation of doubtful cases, which should also be re-vaccinated immediately.

6.—That the cost of maintenance and treatment of small-pox cases in hospital should be borne by the

community, as it is for the sake of the community that strict isolation is so absolutely necessary. This rule would also lessen the objection to going into the hospital.

As further means whereby the existence and spread of small-pox may be checked, and almost, if not entirely, stamped out, may be mentioned:—

(1) The exercise of great care on the part of both medical men and private individuals, so that slight, modified, and doubtful cases shall not be overlooked. (2) Prompt notification and prompt isolation of cases. (3) Prompt disinfection of their homes and of the clothing of their relatives after the removal of patients to hospital. (4) Prompt re-vaccination of the relatives, and of other residents in the houses where small-pox occurs. (5) Quarantining at home, or at special quarantine houses, all those who refuse to be re-vaccinated, until after the period has elapsed in which they might develop the disease. Quarantining has been recently carried out very extensively at Leicester (where vaccination is so generally unpopular), and those quarantined have been pecuniarily compensated for their temporary loss of employment. The importance of quarantining under such conditions as at Leicester is shown by the fact that of 968 persons quarantined there, 44 turned out to have caught small-pox before being quarantined. If those 44 had been allowed full liberty, how many times 44 they might possibly, nay certainly, have infected? But the cost of quarantine and of compensation, and the observation and visitation work of the sanitary officials in connection therewith, is an enormous disadvantage—especially when contrasted with the vastly simpler and more economical method of vaccination, although the quarantine system curtailed the outbreak at Leicester with remarkable success this time, whatever it might do in another epidemic. (6) Sanitary Authorities should have full powers to compel removal of small-pox cases to hospital, subject to the discretion of their Medical Officers of Health. (7) County Councils should make it their duty to look after the proper provision of district small-pox hospitals, both urban and rural, and of all other means of dealing with an epidemic, and all the Authorities would do well to institute public lectures—on the approach of an epidemic especially—on the dangers of small-pox, and the truth about vaccination.

THE PREPARATION OF FOOD FOR INVALIDS.*

By FREDERICK P. HENRY, M.D., *Physician to the
Philadelphia and Jefferson College Hospitals.*

I do not propose, in this lecture, to give many details concerning the preparation of food for the sick, and the amounts in which it should be administered, as these require separate study in each individual case of illness. My object is merely to impart certain principles which govern the administration of food in all cases.

The function of the saliva is to convert starch into sugar, and this change is almost immediate. The saliva has another function, *viz.*, that its presence in the stomach excites the secretion of gastric juice. The relation between the secretion of the saliva and that of the gastric juice is so intimate that it might be expressed by the aphorism: *no saliva, no gastric juice.* This statement is so important, that I think it advisable to mention some of the facts upon which it is founded. Into the stomach of a dog, food consisting of beef, bread and water, was introduced by means of a stomach pump, and immediately afterwards the oesophagus of the animal was tied. After three hours the dog was killed, and the food in the stomach was found almost unaltered. The same experiment was repeated upon another dog, with the difference that saliva instead of water was mingled with the food. After three hours this dog was also killed, and the food in the stomach was found converted into a homogeneous mass, in which no trace of the meat fibres could be detected—in plain English, pretty thoroughly digested. For our knowledge of this hitherto unknown rôle of the saliva, we are indebted to Drs. Sticker and Wright.

The results of these and other similar experiments recall the peptogenic theory of Schiff, announced about twenty years ago. This well-known physiologist observed that after the digestion of a full meal or after long fasting, the stomach loses the power of secreting a functionally active gastric juice. The function, however, may be restored by the administration of certain food substances called by Schiff "peptogens." These consist, for the most part, of those elements of meat that are soluble in water, together with gelatine and dextrin. When such

substances are taken into the stomach and absorbed by the gastric mucous membrane, the peptic glands are enabled to secrete a functionally active juice. Soup, containing, as it should, a large amount of the soluble portions of meat, is one of the best of peptogens, and the habit of taking it at the beginning of a meal is one that is eminently scientific, although adopted in what may be called an empirical manner.

The experiments of Sticker and Wright have demonstrated that, however important to digestion may be the so-called peptogens of Schiff, unless saliva be mingled with them, they are inert. I would impress on you the great importance of the saliva in digestion, and I consider the experiments to which I have briefly alluded as among the most significant with reference to this function that have been made for many a day.

The practical application of these facts becomes manifest when it is considered that in the greater number of patients, the saliva is either diminished, suppressed, or altered in character. For example, in our largest hospital, the greatest number of acute cases is made up of rheumatism and typhoid fever. In the former the saliva is vitiated to such an extent that its reaction is acid, and in the latter it is either diminished or suppressed entirely. The remedy for this condition is to be found, not so much in the drugs prescribed by the physician as in the food prepared under his direction.

The majority of food substances must be submitted to some sort of preparation before we can consume them to the best nutritive advantage. I say the majority, because there are certain exceptions. In the first place nearly all fruits are eaten raw, but this is due to the fact that sugar, upon which their nutritive value mostly depends, is not altered by cooking. The same is true of milk. Dr. Roberts, of Manchester, one of the greatest authorities on the subject of digestion, found that boiled milk was not peptonized any more rapidly than milk in the natural state. There is, at least, one article of food that is rendered less digestible by cooking, and that is the oyster. In my former lecture, in speaking of the destination of starch, I stated that after being rendered less soluble by conversion into dextrin and maltose, it was absorbed and carried to the liver by the portal veins, when it was reconverted into an insoluble animal starch called glycogen. The soft, fawn-coloured mass which forms the bulk of the oyster is its liver, which is almost entirely composed of

* A lecture delivered at the Training School for Nurses, Philadelphia, U.S.A.

glycogen. In close proximity with this glycogen, but kept from actual contact with it during life, is its appropriate digestive ferment—the hepatic diastase. When the oyster is crushed by mastication, the glycogen and diastase are brought in contact, and digestion takes place immediately without any aid from the gastric secretions of the eater. In cooking the oyster, this hepatic diastase, like all digestive ferments, is destroyed by heat, and digestion of the bivalve must then take place in the ordinary way.

The beneficial effect of cooking is most marked upon starchy substances, which make up at least two-thirds of the food we eat. But for the art of cooking, the immense supplies of cereal food would be unavailable. Starch, whether it exists in tubers or grains, has the same composition. It is contained in minute granules or cells, of which the wall is formed by a substance called cellulose. By boiling starch, its component granules swell up enormously, owing to absorption of water, burst their investing layer of cellulose and fuse into a mucilaginous mass which is digested with great readiness. The layer of cellulose which surrounds each starch granule is quite indigestible, so that, as I have said, but for the art of cooking, starchy food would be of little use to us. The effect of cooking albuminous or proteid substances is to render them much more digestible, although we are ignorant of the precise nature of the changes they undergo during the process. For example, if a mixture be made of one part of white of egg to nine of water, it will be found to be very slowly acted on by pepsin and hydrochloric acid; but, after being boiled, it is very rapidly digested, although not sensibly differing from its uncooked state. The same is true of the gluten of wheat. The effect of cooking, therefore, upon the greater number of our food substances is to lessen the work of our digestive organs. It may be, in fact, regarded as the first, and by no means the least important, stage of the digestive process. The necessity to healthy people of cooking, *i.e.*, partially digesting their food, has long been admitted by every one, but very recent is the suggestion that this process should be carried much further for the sick. The marked conditions common to the greatest number of diseases are fever and anæmia; in fact, one or other, or both, are almost invariably present. Since the observations of Beaumont in the celebrated case of St. Martin, it has been known that during fever the gastric mucous membrane is dry, red, and irritable and secretes very little gastric juice. The gastric

juice is wanting in acidity also in catarrh of the stomach and in cancer, while experiments on animals show that in the anæmia produced by great loss of blood the gastric juice has very feeble digestive power. In such conditions, therefore, and they are very common, the work which, in health, is relegated to the stomach, should be done outside of the body. That is to say, the food, in addition to being cooked, should be peptonized.

Milk, which is the typical food, is also the one that is mostly peptonized. Of the three organic ingredients which it contains, *viz.*, sugar, fat, and casein, the two first require little or no change to render them capable of absorption into the system, so that the action of the peptonizing process is expended in converting casein into peptone. For this purpose either fluid or solid extracts of the pancreas are employed. There is a preparation known as liquid pancreatin, which is simply a dilute alcoholic extract of the pancreas. It was discovered years ago by Eberle that a watery infusion of the stomach or pancreas possesses the same digestive powers, although in the lesser degree, as the natural secretions of these glands. A watery solution of organic matter will, however, soon undergo decomposition, and for this reason various substances were added as preservatives. The best of these are boracic acid, chloroform, and dilute spirit, and of the three the last is decidedly the best. The strength of the liquid should be in the proportion of 20 to 25 per cent. of rectified spirit. This amount does not interfere with its digestive powers, and enables it to be kept indefinitely. Here is a dry extract of pancreas that is more used than any other preparation. The bottle containing the extract also contains a small wooden measure which holds five grains and another measuring fifteen grains. The following is the method of using the dry extract in peptonizing milk: Five grains of pancreatic extract, and fifteen of bicarbonate of soda are dissolved in a gill (4 ounces) of cold water, and then added to a pint of fresh, cool milk. This milk is then poured into a bottle, and placed in water as hot as can be borne by the hand, where it is left for twenty minutes. By that time it will have acquired a slightly bitter taste. Now, it is important not to let the process go too far because in that case the taste of the milk will be so disagreeable that the patient cannot be induced to take it. You must remember that the digestion begun in this manner will be continued in the stomach without throwing any work on that organ. In other words, the

pancreatic extract which you have added to the milk will continue to act after the milk has been swallowed, or outside of the body if kept in a warm place. Now, suppose the patient is not ready to take the milk after you have partially digested it in the manner described. How are you to stop the action of the pancreatic extract before it has gone so far as to render the milk nauseous to the strongest stomach? There are two ways of doing this. All ferments are destroyed by a heat of 212 deg. F., and, therefore, if you boil the peptonizing milk you will at once put an end to all further digestive action. This, however, is not desirable, for you want the digestive action to continue in the stomach without any aid from that organ. Instead, therefore, of boiling the peptonizing mixture, you will place it on ice, for it has been found that a low temperature *suspends* the peptonizing process without destroying it. The most convenient mode of peptonizing milk is with the aid of these peptonizing tubes, each one of which contains the materials (5 grains pancreatic extract and 15 grains bicarbonate of soda) for peptonizing one pint of milk. In using the liquid preparation the same process exactly is employed.

The peptonized milk may be given to the patient alone or in various combinations. It is an excellent vehicle for stimulants. Many people who are unable to take milk punch as ordinarily made, will find a peptonized milk punch easily digestible. It will readily occur to you that numerous articles of food having peptonized milk for their bases may be prepared for the sick. Among them are peptonized milk gruel, peptonized porridge and milk, and peptonized milk jelly. The last-named is very palatable, and is composed of peptonized milk, to which, while hot, a certain amount of gelatine is added. It is sweetened, flavoured with orange, lemon, wine, brandy, or rum, and eaten cold. It is by no means necessary to peptonize milk in all cases in which that substance is administered, but merely in those in which digestion is impaired. The most striking indication of this condition is a dry mouth. It may be set down as a rule that whenever the mouth is dry the food should be peptonized.

(To be continued.)

REVIEWS AND NOTICES OF BOOKS.

How to Stop River Pollution. By FRANK SPENCE. Manchester: J. E. Cornish.

This pamphlet is a reprint of an article which appeared in the *Contemporary Review* from the pen of Mr. Frank Spence, a practical Sanitarian, well-known to many thousands of our readers through the recently published account of the Alumino-ferric method of purifying sewage, patented by Messrs. Peter Spence and Son, of the Manchester Alum Works. (HYGIENE, Vol. VII., No. 17, Sept. 8th.)

Without doubt the condition of our rivers is very much below what it should be. In many parts of England the rivers are practically open sewers, while in few does their state amount to perfection. How this comes about is described by Mr. Spence with a quiet humour which makes the whole pamphlet good reading. "The growing population," writes the author, "demands a sewage system, and the collected result, more or less 'treated,' is poured into the streams. Some riparian owner, finding the stench unendurable, or some water company or manufacturer drawing a tainted supply from the polluted river, brings an action. After some eighteen months he obtains an injunction, the effect of which is suspended again and again, in order to give the offending Local Board of Health plenty of time to examine the competing chemical methods, to buy a small piece of land, to get the sanction of the Local Government Board to borrow money, and to put up works. There are two parties on the Local Board, and the prevailing motive is to save the rates." So that the proverb of "Great cry and little wool" is exemplified to the full. Everyone concerned gets heartily sick of the law's delays, and still more of the heavy expenses. The ultimate result is that apathy, or dislike to further expenditure, gains the upper hand, and matters, even if remedied for a short period, drift into the same condition as—possibly, indeed, a worse one than—before.

Now, Mr. Spence suggests a practical remedy, which could be carried out expeditiously, economically and effectively. He proposes that the outflows of all sewage works should be placed under regular inspection by officers of the Local Government Board, just as chemical works are by the Alkali Act, 1884. We have Government inspection in the case of many matters of public importance—factories,

mines, schools, prisons, asylums, chemical works, &c.; in the case of chemical works, pollution of the air is especially guarded against, by qualified inspectors appointed under the Alkali Works Regulation Act, which enjoins that the best practical means must be employed for the condensation of noxious vapours issuing from the works; while, in respect of certain chemical manufactures a maximum proportion of noxious gas per cubic foot of vapour allowed to issue, is fixed, and must not be exceeded, under penalty. The extent to which the provisions of this Act are put in force may be judged from the last issued annual report of the Local Government Board, which states that nearly 5,000 tests of vapours escaping from various chemical factories were made in the past twelve months. The results of this system of investigation, as shown by an article on the Working of the Alkali Act, by the Chief Inspector, Mr. A. E. Fletcher, F.C.S., published in *HYGIENE* last year, and by the recent Local Government Board's Report, are highly satisfactory. The average proportion of impurity is less than half of the rate fixed by the Statute; and, further, the additional care bestowed upon the processes of manufacture has led to a steady diminution of the noxious impurities, and to new inventions for utilising the waste products, thus promoting economy of manufacture.

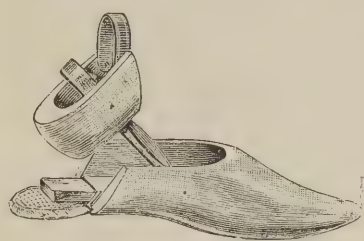
With very good reason for his argument, Mr. Spence urges that, if a system of testing the subtle tainting of the air in certain localities concerned can be thus satisfactorily carried out, there can be no difficulty in, or objection to, a similar system of inspection in the case of sewage effluents. Every outflow of waste liquid from sewage works should be made to pass through an open conduit, accessible to the inspector at all hours of the day or night. Thus, by degrees, the "best practicable and available means" of purification would come into use, as in the case of alkali works. It is impossible to realise at once the immense gain to public health and comfort which could be obtained for all towns, villages, and houses situated near to, or deriving water supply from polluted streams, by adopting some such system as that proposed by Mr. Spence, commencing with a moderate standard of purity, to be gradually increased.

Mr. Spence demonstrates in a business-like manner how the Public Health Act (1875) can be utilised for putting a system of inspection in force, even to the ultimate step of enabling the Local Government

Board to take upon themselves the necessary measures for purifying the effluent, at the expense of the sanitary district, in the extreme event of the local authority failing to perform their duty within a limited period, after sufficient warning.

HYGIENIC NOTICES.

A New Boot Warmer and Dryer, well designed for the purposes for which it is intended, has just been brought out by Messrs. E. and W. Belden, of Great Dover Street, S.E. In appearance it resembles a boot-tree; it is warmed to the necessary heat

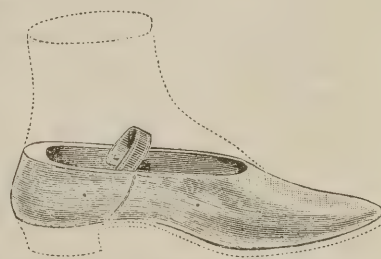


by a small metallic block, previously submitted to the flame of a small spirit lamp, and then inserted into the case in the

lower part of the boot-tree.

The heat thus generated is warranted to be retained for 2 or 3 hours. As the warmer does not come into contact with the boot itself, owing to the interposition of a thick layer of non-conductive material, let

into the bottom of the tree, the heat cannot injure the leather. The apparatus, fitting into the boot, aids in preserving its proper shape. For



all persons who suffer from cold feet—their name is "legion"—who have to go out at night, or early in the morning, before the world gets thoroughly aired, (as poor Tom Hood used to say,) or who have to travel much by rail or 'bus, this ingenious invention will prove a real boon.

Maize, or Indian corn, although largely used for food in the United States, has found little favour elsewhere. It is somewhat poorer than wheat in flesh-formers, but it contains more fat than the latter grain, or barley. When it is mixed with wheaten flour, it furnishes the material for good, wholesome bread.

ANSWERS TO CORRESPONDENTS.

Dr. Roberts (Bristol).—Reid's *Practical Sanitation* is published at 6s. Our publishers would get it and forward it, post free, on receipt of cheque or postal order for that amount.

Incredulous doubts whether boiling alive was ever used as a mode of putting criminals to death, though he has seen a reference to that mode of punishment in a book of history. Undoubtedly, malefactors used to be put to death in this way, the punishment being usually reserved for poisoners. Stow's *Chronicle* records two such instances in the time of Henry VIII. In 1532, on the 5th of April, one Richard Rose, a cook, was boiled in Smithfield, for "poisoning of divers persons to the number of sixteen, or more," at the Bishop of Rochester's palace; the Bishop partook of no pottage at dinner, whereby he escaped. Again, in 1543, Stow says that on the 17th of March, Margaret Davy was boiled in Smithfield for poisoning three households that she had dwelled in.

M. O. H.—We should recommend you to include the fact in your report. You could not do otherwise if you perform your duty conscientiously.

A Well-Wisher (Jersey).—You can be supplied with *HYGIENE*, weekly, post free, for 12 months, on sending 6s. 6d. to our publishers.

M. G.—Draw the attention of the sanitary inspector to the nuisance created by your neighbour. Probably, his calling may lead to the nuisance being abated; which an acrimonious correspondence can never succeed in doing.

An Inquirer.—The observation "*Sanitas sanitatum, omnia sanitas*," made by Disraeli, is an obvious paraphrase of the Biblical "*Vanitas vanitatum, omnia vanitas*."

H. Rosenthal (Berlin).—The present volume of *HYGIENE*, Vol. VII., commenced with the May 13th number.

A Sanitary Inspector.—You can get the book you name of Knight & Co.

Alpha.—We cannot find room for your letter, the subject having been so recently dealt with at full length in our columns.

M. D. (Birmingham).—We are much obliged for your note and good wishes. The systematic exposure of quacks and quackery had never been undertaken before *HYGIENE* entered upon the task, and we look confidently for the support of the medical profession.

A Lady (Brighton).—Thein, the essential principle found in tea, and caffen, found in coffee, are chemically identical.

M. C. E.—The subject shall receive attention in an early number. If you have no newsagent in your village, Smith & Son would supply you regularly with *HYGIENE* at the railway station bookstall.

Mr. J. H. Nicholas.—We have received the syllabus of the course of lectures on practical sanitation, and noticed them elsewhere in *HYGIENE*.

Longevity.—Old Parr is commonly supposed to have lived longer than any other Englishman, but it is recorded of Henry Jenkins that he attained the patriarchal age of 169 years. We shall shortly publish an article on the subject of longevity.

Mons. E. J. M. (Paris).—Any English bookseller would supply you with *HYGIENE*. If you should experience any difficulty, we may mention that this paper is regularly posted to France, as well as all other countries included in the Postal Union, for 6s. 6d. yearly subscription.

 EDITORIAL AND PUBLISHING

 NOTICES.

EDITORIAL.—The Editor begs to express his thanks to numerous correspondents, and to state that he will be pleased to receive any articles or correspondence coming within the scope of *HYGIENE*, books or pamphlets for review, reports of medical officers of health, items of general or local sanitary interest, newspapers (marked at the part to which it is desired to draw attention), etc.

ADVERTISERS are requested to bear in mind the greatly increased circulation of *HYGIENE*, with its weekly issue and reduced price. In addition to the large, regular circulation, many thousands of copies are distributed annually to sanitary officials, medical men, private addresses, public libraries, clubs, hotels, &c.

A Definition of Moderate Drinking that will satisfy all parties has yet to be written. Meantime, the following remarks with which a Scotch minister is said to have concluded a harangue on drunkenness are peculiar enough for reproduction:—"I've nae objection to a dram in the morning when ye get up, and another after breakfast to help ye begin the day, and one before dinner to gie ye an appetite, and anither afterwards to help digestion, and yet may take a dram or two in the afternoon, and one for a nightcap; but dinna be a dram, dramming!"

HYGIENE,

A SANITARY PAPER.

VOL. VII.]

FRIDAY, OCTOBER 6, 1893.

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THE PREPARATION OF FOOD FOR INVALIDS.

By FREDERICK P. HENRY, M.D., *Physician to the
Philadelphia and Jefferson College Hospitals.*

(Concluded from p. 290.)

BEEF tea and other animal broths are useful adjuncts to milk, but are far inferior in nutritive value. They are, in reality, little more than peptonized, *i.e.*, stimulants to the gastric secretion. This office of beef tea is, however, by no means unimportant, and when well borne it should be given daily in moderate amounts. When given to the extent of two pints or more a day, it is almost certain to excite diarrhœa on account of the large proportion of potassium and other salts which it contains. When a meat preparation is given with the object of supplying albuminous waste, an object which ought to be borne in mind in every case of acute fever, it should be given in a partially digested form as in the well-known preparation called *beef peptonoid*.

Koumiss.—This preparation of milk, which has been used for centuries in Tartary, is one of the most valuable articles in the sick diet list. In Tartary and Asiatic Russia it is made from mares' milk, which differs from that of the cow in that it contains a smaller amount of casein and fat, and a decidedly larger amount of sugar. When sugar is added to cow's milk the koumiss thence obtained is, consequently, much more nutritious than that prepared from mares' milk. Koumiss is fermented milk,

and therefore contains alcohol, but in the smaller quantity of from two to three per cent. Its frequent tolerance by a stomach which rejects all other kinds of food is due to several important factors. In the first place it is taken cold; in the next, it contains a large quantity of carbonic acid gas, which exerts a sedative action on the nerves of the stomach; thirdly, it contains, as already stated, a small percentage of alcohol; and finally, the casein is changed into acid albumen and peptone, in other words, partially digested. With a little attention to some important details, koumiss may be readily made by any one, the sole ingredients requisite being milk, sugar and yeast. A clean quart bottle is filled three-fourths full of perfectly fresh milk, and to this is added a tablespoonful of fresh brewer's yeast or one-fourth of a cake of Fleischmann's compressed yeast, and a tablespoonful of white sugar. The bottle is thoroughly shaken and then filled with milk to within two or three inches of the top, and again shaken. It is then tightly corked with a cork that has been softened by soaking in hot water, and for this purpose a corking machine should be employed. When the cork is driven home, it is properly tied down. The bottles are now placed in an upright position in a cold place, at or near the temperature of 52° Fahr., where they should remain two or three days. They are then put on their sides in a cool cellar or refrigerator. Koumiss is probably at its best when five or six days old, but can be kept indefinitely at a temperature not exceeding 52° Fahr. In the event of its turning sour, it need not be thrown away, but may be used

for cooking purposes, as it is excellent for making biscuits, pancakes, &c.

In conclusion, I will say something about gelatine, a substance which, in my opinion, is too little employed as a food for the sick. In fact, it has no recognised standing in the sick-diet list. The history of this substance affords one of the innumerable instances of the tendency of the scientific mind to pass from one extreme to another. During the great French Revolution, the feverish mental activity which displayed itself most conspicuously in the field of politics was manifested in every department of science. The important subject of supplying the French army with food was studied, in what now appears to us a very superficial manner, by numerous physiologists. One of the hasty conclusions of these studies was that gelatine is the nutritious substance of meat, and that from one pound of bones could be extracted as much and as good soup as from six pounds of flesh. This opinion of the value of gelatine was formulated in the extravagant and inflammatory statement that one dozen bone buttons represented so much soup stolen from the poor. Notwithstanding this tender solicitude for their welfare, the poor never took kindly to the food recommended by the first Gelatine Commission of 1802, thus showing that the voice of Nature, although not so loud as that of authority, is much more convincing. By degrees doubts began to be entertained concerning the nutritive value of gelatine, which found their principal exponents in Donné Gannal, Edwards, and Balzac. A second Gelatine Commission was appointed which made its celebrated report through Magendie in 1841, to the effect that gelatine is not only devoid of nutriment in itself, but that it impairs the nutritive value of other foods when mingled with them. Such a condemnation is, of course, absolute, and it is not surprising that the reputation of gelatine has never recovered from this verdict, which was pronounced by some of the greatest physiologists of the age. I have now given the extremes of opinion with reference to this substance, *viz.*, extravagant laudation by the first Gelatine Commission; absolute condemnation by the second. The truth, as a matter of course, lies midway between them. Gelatine alone cannot support life; neither can albumen, which is a recognised type of nutritious substances. But whence, may be asked, arose the error that gelatine mingled

with foods of well-known nutritive value is injurious to the system? Simply from the fact that in those experiments of the second Commission in which gelatine was mingled with other articles of food, the former was added to the latter as a rule in inordinate quantity. Large amounts of gelatine will give rise to diarrhœa, but the same effect will result from the ingestion of too much fat, or common salt. Without wearying you with details concerning the experiments of the second Gelatine Commission, I will merely state that their fallacies have been exposed by Carl Voit, who, in 1872 determined with scientific precision the real value of gelatine. The result of his researches may be summed up in the statement that gelatine is an albumen-sparing substance. In other words, the amount of albuminous food necessary to maintain our bodies in a state of nutritive equilibrium is lessened by the ingestion of a certain amount of gelatine. This albumen-sparing property of gelatine renders it a most appropriate food in acute febrile conditions, in which there is excessive destruction of the albumen of the body, and the best mode in which it can be administered is in the peptonized milk jelly to which I have referred.

PATENT ALIAS QUACK MEDICINES.*

By the EDITOR.

NO. XVI. (NEW SERIES).—QUACK ADVERTISING;
CLARKE'S BLOOD MIXTURE AND THE BOGUS
TESTIMONIAL FROM DR. SWAINE TAYLOR, F. R. S.

* The widely spread interest in the original series of articles published under this title in *HYGIENE*, and the great demand for the two volumes of reprints (VOL. I. has run out of stock, and only VOL. II., price 1s., sent post free by our publishers for 14 penny stamps, remains in hand,) have induced us, at the request of thousands of our readers, to bring out a new series, containing many fresh reports and analyses, in addition to those which have previously appeared. The following articles have already appeared in this series. It should be mentioned that the new volume of *HYGIENE*, VOL. VII., began on May 13th, 1893, so that subscribers to that volume will have the complete series.

No. I. (May 13th) included:—Patent Medicines; Patent Medicine Law; Mattei's Electro-Homœopathic Remedies. No. II.—(May 20th), Clarke's Blood Mixture. No. III.—(May 27th), Clarke's Blood Mixture; Chlorodyne and other Opiates. No. IV.—(June 9th), Revalenta Arabica. No. V.—(June 16th), The History of Patent Medicines; The Sequah "Prairie Flower" and Oil. No. VI. (June 23rd) Holloway's Pills and Ointment. No. VII.—(June 30th), Correspondence about Holloway and Mattei. No. VIII.—(July 7th), Concerning Advertised Testimonials of Clarke's Blood Mixture. No. IX.—(July 14th), Allen's World's Hair Restorer; Mexican Hair Restorer; Singleton's Golden Ointment for the Eyes; Rowland's Kalydor and Gowland's Lotion for the Skin; Mrs. Anna Ruppert's Skin Tonic; Mattei's Electricities. No. X.—(July 28th), Quack Ad-

WE have frequently had occasion in this series of articles to refer to the persistent and perpetual puffery of quack nostrums. Like the poor, mentioned in the Scriptures, the "pillionaires," as Mr. George R. Sims has designated the people who make hundreds of thousands, even millions, of pounds out of advertising aloes, or some equally cheap, common drug, as capable of curing every human ill, are for ever obtruding themselves upon us. Whether walking, riding, eating, drinking,—whatever we may be doing in fact—we get ocular evidence of the ceaseless activity of the quacks. Why, one is almost led to suppose that they never go to bed like ordinary folk, for they are in evidence from our rising up to our retiring to rest; and, if perchance we should need to strike a match in the middle of the night, the odds are ten to one against our not finding the box decorated with the statement that Gullaway's Ointment or Fleece'em's Pills will confer long life and the best of health upon anyone idiotic enough to be taken in by such reckless assertions. Mr. "Dagonet" Sims, in last week's *Referee*, strongly denounced, in his customary humorous style, the extent to which quack advertising had gone; the latest development of it being the erection of huge boards alongside the railway lines, painted in bilious-looking or bright crimson colour. "Somebody's Pills hold the field," would seem to be the highest literary effort of the men who thus insist on adding a new misery to railway travelling. Of course, we shall be told that such a proceeding is strictly legal, that anyone—provided only that he arranges with the owner or occupier of the land,—can erect the most hideous hoarding he chooses, and cover it with the most objectionable and untruthful statements. "Did you see all those quack advertising boards standing alongside of the line as you came down?" inquired a friend whom we were visiting in Surrey; as if, indeed, anyone not absolutely blind or, previously to starting, under the influence of chloroform, could fail to see them! "We saw a number of quack advertising boards *lying* alongside of the line," was our reply, delivered in such an emphatic manner that our friend looked for the

moment as if he thought the wrong man had accepted the invitation to spend the day with him. Mr. Sims tells an amusing story of a romantic young lady, who, travelling in the same carriage with him, closed her eyes, and said to her mamma, "Mother, tell me when the scenery isn't all pills, and I'll look at it again." Then Mr. Sims expresses in verse his disgust at this general debasement of the English landscape for advertising purposes.

SOMEBODY'S PILLS.

The sun o'er the valley is streaming,
The lambkins are frisking with glee;
In the bright light the rivulet gleaming
Meanders away to the sea.
The meadows with daisies are dotted
And crowned as with gold are the hills;
But the whole of the landscape is spotted
With advice to try "Somebody's Pills."

The woodland is brave in its glory,
The fulness and freshness of spring;
Round the castle afar, old and hoary,
The ivy leaves clamber and cling;
There is rest for the eye as it gazes,
There is joy for the heart as it thrills;
But the beauty is all sent to blazes
By the big boards of "Somebody's Pills."

If the traveller, wearied and annoyed at the way in which these quack advertisements are paraded at every point of view, turns to his newspaper for some relief, even then the ubiquitous quack announcement meets his eye, and vexes his spirit. Not unfrequently, too, he comes across some extraordinarily worded heading, such as "Ten minutes more, and he would have been beyond help," "Saved by a String of Sausages," "A Night in Newgate," and similarly startling titles; he reads a few lines, becomes interested, then drops the paper with an inward groan as it flashes across his mind that the preliminary paragraphs only lead up to a barefaced puff of Grandmother Seagull's Treacle, or some other nostrum, which, like the razors in *Peter Pindar*, is "made to sell." His feelings, as the truth dawns upon him, are well portrayed in the following lines, which appeared some time since in a London weekly, *Fun* or *Tit-Bits*, we are not sure which paper.

ON PATENT MEDICINE STORIES.

It was only a newspaper story,
And yet, as I read it o'er,
My eyes grew moist and heavy
As they had not in years before.

It was not the art of the writer
That on my heart-strings swept,
But the story simple and tender,
Went to my heart as I wept.

vertisements and Testimonials; Mother Seigel's Syrup; Clarke's Blood Mixture and the late Dr. Swaine Taylor. No. XI.—(August 11th), Clarke's Blood Mixture; the Alleged Testimonial from the late Dr. Swaine Taylor, F.R.S.; the Obverse and the Reverse. No. XII.—(August 23rd), Quacks' Testimonials; Mother Seigel's Syrup; Clarke's Blood Mixture. No. XIII.—(September 1st), Beecham's Pills. No. XIV.—(September 15th), Pink Pills for Pale People. No. XV.—(September 29th) Warner's "Safe Cure."

But when I arrived at the "finis,"
It caused my heart to ache;
And I spoke strong words, for that tender tale
Was a patent medicine "fake."

Talking of quack advertisements, we are reminded of the sudden disappearance from the London daily and weekly papers of one about which we have had a good deal to say in this series of articles. We refer to the testimonial widely advertised by the proprietors of Clarke's Blood Mixture, and alleged to emanate from the late Dr. Swaine Taylor, F.R.S. In the various issues of *HYGIENE* for June 23rd, July 7th and 28th, and August 11th, we published irrefutable evidence that no such testimonial could ever have come from that able analyst and distinguished scientist, and we stated our firm belief that the alleged testimonial was either a myth, or an impudent forgery. The proprietors of Clarke's Blood Mixture have been suspiciously silent; they have withdrawn the bogus testimonial from their advertisements; but they have not ventured on the least explanation, although each of those four numbers of *HYGIENE* have been sent to them by registered letter. They have "climbed down," and scuttled off in a manner on a par with their flagrant abuse of the honoured name of a dead man. But they must not imagine that they can escape scot-free in this way. We reassert, with the emphasis of full conviction, heightened by a sense of duty to Dr. Swaine Taylor's memory, that the alleged testimonial advertised by the proprietors of Clarke's Blood Mixture is either a myth, or a forgery; and we are prepared to make a wager of any moderate amount—not belonging to the class of "pillionaires"—that our assertion is correct. It would be repugnant to our feelings to receive Blood Mixture money; so that we must make one stipulation, namely, that the winner shall divide the proceeds of the wager between deserving medical and masonic charities.

The Adulteration of Flour has become a fine art in Delaware, U.S.A. The bark is peeled off white beechwood logs, which are next submitted to the action of a powerful cutting machine, shaped somewhat like a pencil sharpener, furnished with half-a-dozen keen knives. These revolve at the rate of 200 to 300 revolutions in a minute, so that the log is very soon cut into very fine shavings. These are thoroughly dried, put into a hopper, and ground in the same manner as wheat. The man who invented this wholesale swindle must be one of the Russian army-contractors, who supplied the soldiers in the Russo-Turkish Campaign with black bread composed of sawdust admixed with flour.

PUBLIC HEALTH REPORTS.

Kensington.—In his monthly report on the sanitary condition of this populous West End district (the number of inhabitants in 1891 was more than 166,000), Dr. Orme Dudfield again directs attention to the marked inadequacy of hospital accommodation for cases of scarlet fever and diphtheria. The natural consequence is that as a large number of patients suffering from these two affections—both now exceedingly rife in the metropolis—are left in their own homes, they must necessarily serve as so many centres of infection. This is a serious matter, and demands early rectification. The Metropolitan Asylums Board have been somewhat unreasonably blamed by a section of the press for this state of things. This fault rests with the public much more than is commonly imagined. No sooner does even a rumour get into print that the Board have decided upon some particular site for the erection of a convalescent fever hospital than the whole locality is up in arms, and vigorously opposes the scheme in every possible manner. For instance, only very recently the managers of the Board made overtures for the purchase of an eligible piece of ground, known as the Grange-wood Estate, Upper Norwood, "apparently admirably adapted for the purpose," as Dr. Dudfield observes. But local opposition ran so high, that before the sanction of the Local Government Board could be obtained for the proposed purchase, the residents in the neighbourhood had actually arranged amongst themselves to bid over the managers' offer, and bought the property from the trustees in whose hands it lay. The precedent established is one likely to lead to some curious results; for, if any one should have an unsaleable estate in the vicinity of London, he would only have to hint at the possibility of the Metropolitan Asylums Board buying it for a fever hospital site, and wealthy residents in the locality would hasten to form a syndicate for anticipating the Board's action. But, though foiled in their endeavour to obtain the Norwood site, the managers have been more fortunate elsewhere, as they have acquired the Norfolk Farm estate at Tooting, and are now erecting a temporary hospital for the accommodation of about 400 patients: 8 acres of the estate will be devoted to the use of the temporary hospital, leaving 23 acres for utilisation for a permanent hospital. At Hither Green, Lewisham, the managers will erect an institution to be called

"the Park Hospital"; while the wants of the extreme south-eastern part of the metropolis (including East Greenwich, Woolwich, Plumstead, Charlton, and Eltham) will, subject to the approval of the Local Government Board, be provided for by the erection of a permanent fever hospital on a site of 30 acres in the parishes of Kidbrooke and Charlton, near Shooter's Hill Road. The Board, now fully alive to the urgent need of additional hospital accommodation for infectious cases, are, says Dr. Dudfield, "proceeding in a resolute spirit to perform the duties assigned to them, and I am persuaded that it will not be their fault should London not be provided with adequate and permanent accommodation for the infectious sick, within a reasonable time."

Referring again to the excessive prevalence of scarlet fever and diphtheria in London, we may mention that, out of a total of 6,065 cases of infectious disease notified to the Metropolitan medical officers of health, in accordance with the requirements of the Public Health (London) Act, 1891, in the four weeks ended on Saturday, September 9th, 3,502 were cases of scarlet fever, and 1,153 patients suffering from diphtheria, making an aggregate of 4,655 or considerably more than double all the other notifiable diseases put together.

During the four weeks covered by Dr. Dudfield's report, 271 births and 185 deaths were registered in Kensington. The death-rate was equal to an annual rate of 14.4 per 1,000 persons living. Of these deaths, seventy were of children under five years of age, forty-nine of them being under one year; forty-one of the deaths registered were of persons aged sixty years or upwards.



Milk Adulteration.—A singular instance of the impunity with which the adulteration of milk is practised in London came to the knowledge of the writer of this paragraph some time ago. A strange lad, carrying two milk pails, entered the shop of a respectable eating-house keeper, in Southwark, and asked for a pennyworth of pudding and a mug of water. Upon being supplied, he proceeded to eat the pudding, and, after putting down his penny, poured about half a pint of the water into one of the milk-pails, saying, "That will pay for the pudding." On being remonstrated with by the woman who served him, the boy coolly replied that that was the way in which he always got pudding, and that he didn't "go short, either," and then resumed his "milky way," to vend the contents of his cans as "Milk from the Farm," at fourpence a quart. If all milk-boys were as fond of pudding as the one in question, and equally unscrupulous in their method of procuring it, the customers resident at the end of their rounds would have what our Transatlantic cousins would call a "watery time."

REFUSE DESTRUCTORS.

AMONG the many subjects with which we are called upon to deal at the present time, we believe that none surpasses in interest that of the disposal of the refuse of our great towns. The pressing importance of the question is made evident by the inquiries we have recently received from many parts of the country with regard to "destructors" for the burning of ash-bin refuse, market garbage, fish and butchers' offal, and other trade refuse, and in some cases the sludge precipitated from the sewage at outfall works.

We do not propose at present to take anything more than a general survey of this wide and complicated question; and we must refer those of our readers who may wish for more information, to such excellent reports as that of Mr. Boulnois, the City Engineer of Liverpool, and the one lately presented to the London County Council by their medical officer and engineer.

They will soon find that, as regards the differences of opinion upon various points—from the general reasons for locating a destructor inside, or outside, of a town; in the centre of the refuse-producing area, or at the sewage works; for constructing one large plant to deal with the whole of the refuse, or for erecting groups of four to six cells in different districts; the reasons for and against the utilization of the power, or for and against the existence of any power worth utilizing,—even down to the details of the destructor furnaces,—the number of opinions is measured only by the number of sanitary engineers concerned in the question.

High temperatures and low temperatures; forced draught and chimney draught; fume cremators and furnaces to cremate their own fumes; mechanical and hand-fed furnaces; all have their advocates, and when sanitary engineers meet for discussion, the sparks fly, as from a destructor cell.

We do not propose to enter at length into these important questions; but will proceed at once to describe various features of one of the best known of the more recent designs of furnace; the invention of Mr. Horsfall of Leeds, which, while embodying certain principles common to all furnaces, differs widely from destructors of older types.

In the first place, it is a "high-temperature" furnace, averaging 2,000° F. in ordinary working, and this great heat is obtained by forcing the draught with steam blowers; the patent for which

having been allowed to lapse by an absconding patent agent, was last year restored by special Act of Parliament.

The grates being closed by suitable plates and doors, a jet of steam passing into a tube carries with it, by surface friction, the air for combustion, which reaches a pressure of half-an-inch of water under the grate-bars. The suction of the chimney above the grate is then reduced to a minimum, by constricting the flues, if a high chimney is insisted on; or otherwise, by using a chimney only 60 ft. high, by which a large saving in first cost is effected.

Thus, a sufficient draught is secured without excess of air; and, at the same time, one of the main difficulties hitherto encountered, *viz.*, the suction of unburnt paper and dust up the chimney by the powerful draught, is removed.

The latest improvement in connection with the draught is to use large cast-iron boxes to form the sides of the furnaces for a few inches above the grate bars, at the level where the clinker has been found to adhere to the firebrick lining and where, consequently, the lining has usually first given way—the clinker, on being loosened, always bringing with it a piece of firebrick. These boxes project some distance below the grate; and the steam blowers are arranged to blow the whole of the cold air for combustion into their upper part, from whence it descends, and passes through a series of holes into the ashpit below the grate bars. Thus, the iron sides of the furnace are kept cool by about a ton of cold air passing through each of them every hour; while, at the same time, any heat transmitted to the air assists combustion. The steam-jets are connected by means of chains with the charging and clinkering doors in such a way that they are automatically closed as soon as either of the furnace doors is opened. The next improvement is in the outlets for the products of combustion.

In the older types of furnace, the outlet is at the back, and is purposely arranged to cause the hot gases from the burning refuse on the grate to pass over the green refuse upon the drying hearth, in order to dry it before it is raked on to the grate. But since all the offensive vapours proceed from the refuse during the process of drying, it is evident that no better plan could have been devised for carrying such vapours into the flue; and hence the outcry in so many places against the nuisances produced, necessitating the employment of expensive secondary

furnaces, fed by coal or coke, for the “cremation” of the fumes.

In the furnace under consideration, however, the outlet consists of a series of comparatively small holes in the front of the reverberatory arch, and over the hottest part of the fire; or, as at Kidacre Street, Leeds, two side flues drawing from the front of the furnace, which have practically the same effect.

The fumes from the drying refuse at the back of the furnace are thus brought forwards over the hottest part of the fire, and effectively cremated, within the furnace itself, at a higher temperature than that of any of the secondary furnaces so largely employed; the smoke being entirely burned.

An additional chamber or cell is provided at the end of the furnaces, through which the hot gases pass on their way to the chimney, destroying rapidly any diseased meat, infected bedding, or other bulky and offensive articles that may be dropped in.

The furnaces already erected in this country on the principles described above, are the Kidacre Street Destructor, in Leeds (ten cells), and a six-cell plant at Oldham, in addition to which eight more cells at Leeds and a six-celled destructor at Salford are at present in course of erection; while the forced draught apparatus has been fitted to many existing “Fryer” furnaces.

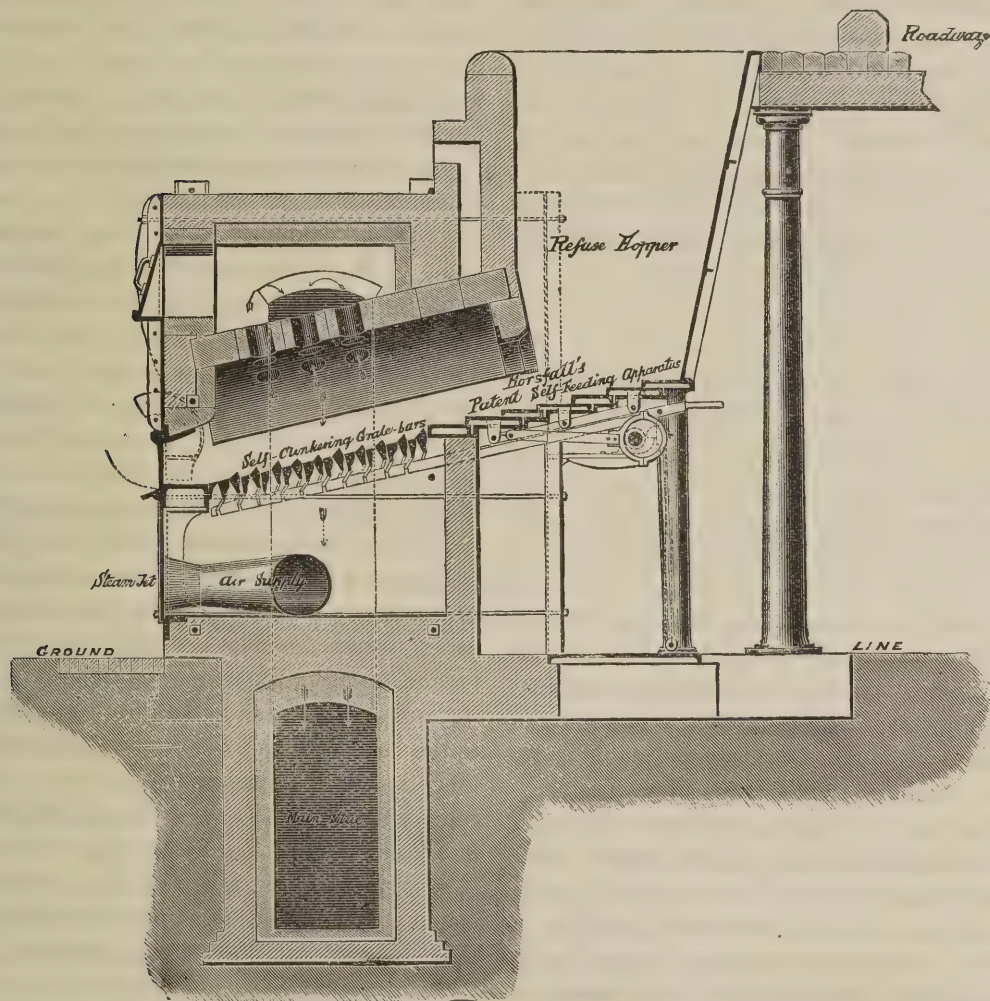
So much has lately been written and spoken respecting the utilization of the power available from destructors, that we can hardly avoid touching upon the subject, though any exhaustive treatment of it comes within the province of the mechanical, rather than of the sanitary, engineer. We will merely remark in passing, that by placing boilers and feed-water heaters with sufficient heating surface, at the end of the furnaces, and causing the hot gases to pass through them on their way to the chimney, an amount of power—over and above that required for the working of the furnaces themselves,—sufficiently valuable (provided a use can be found for it within a reasonable distance of the destructor) to pay more than the whole cost of destruction of the refuse,—can be obtained from a high-temperature destructor.

And here it may be remarked also that among the many misleading statements made upon the subject, none are more evidently useless and absurd than those returns from many authorities professing to give the amount of power actually available, judging from the combustion of the refuse of their districts; when, in reality, they only set forth the small

proportion obtainable from perhaps one small boiler reducing the waste gases from 1400°F. to 900°F.;— a very different thing to the power available from a properly constructed high temperature destructor with sufficient heating surface to reduce the temperature of the gases from 2000°F. to 500°F.

We have hitherto dealt only with the hand-fed type of furnace: but we must now briefly describe the latest design of mechanically fed furnace, which is shown in our illustration.

This furnace combines the improvements described above, with an ingenious method of feeding and clinkering the refuse automatically, which effects a saving in labour only to be estimated by those who have watched the operation of raking down, charging, pushing and pulling forward, and finally clinkering, as at present performed in hand-fed furnaces. Many engineers contend that refuse is a material of so varied and intractable a nature that it is a physical impossibility to design an efficient mechani-



cal grate to burn it. Its size varies from that of buckets, barrels, and sacks to that of fine dust; and its composition, from fairly combustible to absolutely refractory materials; indeed, there can be no doubt that the problem is one of the greatest difficulty.

The furnace shown in our illustration however, which has been erected and worked experimentally, seems to combine the elements of success.

It will be seen that the carts tip the refuse into large hoppers, behind each cell, with openings into

the furnaces, which are closed, or sealed, by the refuse itself.

The material first falls on to sliding bars or plates, alternately movable and fixed, which carry it forward into the furnace; and, being without air-spaces, do not permit even the fine dust to fall through. On reaching the grate-surface proper, and becoming subjected to the full heat of the furnace, the refuse gets coked, and consequently loses its tendency to riddle through. It is delivered upon

mechanical bars of any suitable type, such as Settles' or any other well-known make, concerning which trials are still going on, with the view of ascertaining which gives the best results.

These bars are driven by steam power, and break up the clinker, and deliver it on to the wide "dead-plate" in the front of the furnace, from which it can be easily raked into a barrow.

In addition to the saving in labour, this system has the great advantage that the charging of the refuse is continuous, instead of intermittent, so that the high temperature of the furnace is constantly maintained, thus insuring better combustion; as well as a longer life of the furnaces; which is not subjected to the frequent expansion and contraction unavoidable when the charging and clinkering are done by hand. For further particulars we must refer our readers to the Horsfall Refuse Furnace Co. (Limited), Victoria Chambers, Leeds.



THE WIMBORNE CENTENARIAN, WITH SOME REMARKS ON TEMPERANCE AND LONGEVITY.

BY DR. CRESPI, (WIMBORNE,)

Formerly Editor of the "Sanitary Review."

SOME time ago I was having my hair cut in this town, when the worthy operator inquired if I knew old Mrs. Adams. I replied, though positively blushing at my crass ignorance, that I had not the honour of knowing that doubtless estimable lady. "What," he exclaimed, "not know Mrs. Adams,—Mrs. Reeks' mother?" Again I had to confess with shame and humiliation that I had never been presented to her, and was positively ignorant of her existence. Then my fellow-townsmen unfolded a tale of wonder. Mrs. Adams was one hundred years old, the proofs were complete, even the newspapers,—most veracious and trustworthy of authorities—had had to admit that, and had published some paragraphs relating to her. But even this startling fact did not greatly impress me; nor did I accept the authority of the London press as indisputable. I might once have done so, but since I was the subject of an attack for delivering what was stigmatised as a particularly disgraceful lecture in a town I had never even visited, my confidence in the weekly press has vanished, nor can I admit the manly frankness

of some editors; for when I wrote humbly protesting that I could hardly have given such a lecture in the town in question, as I had never even set foot in it, I was curtly informed that, though my letter was in print, the authority for the statement that I had visited the town and made such an exhibition of myself, was so excellent that my denial could not be accepted as of any value. Since then, I say, I have not believed in the papers as once I did, and so when I heard that the London dailies were satisfied that Mrs. Adams was a centenarian I could only suspend judgment; indeed, so little did I think of the matter and of the investigations made by the clergy, that I never even troubled to spend half-an-hour in going to see her, though I passed her house a score of times a week.

Yet there was such a woman, and she lived to be a hundred and two, and thus it came about that I saw her and examined the proofs of her age.

Sir B. W. Richardson, F.R.S., apostle of scientific temperance and wise preacher of sanitary science, was staying at Swanage in 1890, and I was passing a day with him, when it occurred to me to mention old Mary Adams. His interest was strongly aroused. He had known many very aged people, among them a relative of 96, and he had visited Mrs. Horrocks, of Birmingham, a veritable centenarian who died at 106; he at once proposed seeing Mrs. Mary Adams and reporting upon her. A few days later he came to see me, and having in the meantime made the necessary arrangements, we first visited the Minster, unique amongst the larger churches of the land for its lantern towers and chain library, and then set off to the venerable lady's house. On entering we were much startled to hear that we had been expected for some time, and that as we did not come Mrs. Adams had insisted on having her dinner, which was at that very moment being taken to her. In spite of some clamour on her part, the dinner was removed, and we were ushered into the august presence, and there, lying in bed, we found a very old woman. At first we feared that our visit would lead to little, for the interesting object of it was stone deaf, but we were informed that when she began to know our voices she would not be slow of apprehension, and so it turned out, and before long she was quite communicative and lively, and showed much interest in our visit. Dr. Richardson particularly wanted to examine the state of her heart and lungs, and we then learned to our dismay that she was not partial to doctors, indeed "could not abide the sight of them." But to such a

wise, persuasive physician as Sir Benjamin few things are impossible, and he soon gained her confidence, nay, when he took his leave, she actually begged him to come again shortly, and this he did a few weeks later, when he examined her still more thoroughly, while I also took her temperature three or four times; she bore the tests well.

I cannot easily describe an old lady muffled up in sheets and a night-cap, and lying in a bed in which she has passed twelve years, indeed ever since she had a seizure; she looked sharp and was well cared for. Her maiden name was Cole, Mary Cole, born the 7th of February, 1790, sole survivor of a family of five brothers and sisters. At 25, after some years in service, she married, and her oldest son, were he still alive, would in 1890 have been 74, while the daughter, who took care of her, was over 70, and fully looked her age; the latter is well developed and stout, but feeble; she keeps a small fruit shop, and seems to have had great difficulty in attending to her mother and in supplying her with all the food she needed, and indeed, insisted on having.

Dr. Richardson found the heart perfectly sound, pulsations 80; one lung was good, the other bronchitic; the digestion was splendid, indeed Mrs. Adams had a first breakfast at five or six, a second at eight or nine; first dinner at half-past ten, and a second at half-past twelve or one, and before she settled down for the night had three other hearty meals. She was never troubled with indigestion, but lay awake whole nights, unable to sleep, thus resembling most very aged people, who cannot get sound refreshing rest. Up to 1888 her memory is said to have been perfect, and her conversational powers were then unusually good. She was not reserved in 1890, but since her deafness cut her off from society, she thought more and talked less. She could distinctly remember, when a young woman, sitting up dressed for several nights, expecting the arrival of Napoleon and the French invading party, and, like hundreds of thousands of other people, she was no doubt rather disappointed that he never came. She could remember Trafalgar and the national mourning for Nelson.

Life at such an age ceases to be a pleasure, at least so it seems to the comparatively young, nevertheless the aged cling to this world and long to live on. A poor old woman at Hampreston, near Wimborne, who lived to see the end of a century, retaining good health, eyesight, hearing and digestion

to the last, told her vicar, the late Mr. Patey, that she was very lonely, having long outlived all the companions of her younger days.

Sir Benjamin Richardson told me that Mrs. Adams reminded him of Mrs. Horrocks, the Birmingham centenarian, whom he once carefully examined; she, too, had a good digestion and an unimpaired appetite

Now for a lesson, which I wish to draw. Mrs. Adams had always been an abstainer, not from conviction but habit, and from not liking alcohol, the smallest quantity going to her head and causing discomfort. So that she was an aged, though hardly an illustrious abstainer, an instance that stimulants are not indispensable to long life and physical and intellectual activity.

The entry of the baptism can be seen in the parish register; it occurred on the 13th of February, 1790; while she had an old family Bible, in which, in faded ink, but in a very legible hand, the births and deaths of several members of her family were duly recorded, and among them figured that of the subject of this brief paper—Mary Cole of Wimborne, February 7th, 1790—one of the few cases in which unexceptionable proof of the real age of a reputed centenarian is forthcoming. Instances of well authenticated old age are not so frequent as people generally suppose, and when they do occur are usually found among the wealthier classes, though I cannot deny that the majority of reputed centenarians are among the poor. As a rule these cases will not bear a moment's investigation. What does the reader think of an old working woman, who was said to be ninety-six, whom I once saw: her eldest son was sixty, and her youngest barely forty, and I was positively assured that she had been married when quite a girl; one does not exactly call a woman of thirty-five a girl. On this subject, however, the following paragraph from a recent number of the *Church Times* has peculiar value and application.

“There are at present alive in England about twenty clergy who were ordained deacons in or before the year 1824, and who have, therefore, attained their nineties. Many more will doubtless be as old, having been ordained later in life, but as far as the date of ordination proves age, the number is twenty-one. Of these one was ordained in 1816, one in 1818, two in 1820, one in 1821, two in 1822, four in 1823, ten in 1824. Fourteen are still at their work, or, at least, have not resigned, more than half live in the south of England, three in Wales,

only two or three really in the north, although the oldest clergyman is in the most northerly county. One is a Dean, another a Canon, the rest have been Rectors or Vicars of country parishes. There are besides these, sixteen ordained in 1825, nineteen in 1827, and twenty-four in 1828. The above results were derived from careful study of 'Crockford,' compared with a Clergy List for 1891, and corrected from the weekly obituary."

Mrs. Adams passed through the last winter and spring of her life comfortably, but in the early summer of 1891 she was noticed to be weaker and to be gradually failing, and on Thursday, July 23rd, she passed away, being then in the hundred and second year of her age. She seems to have had little pain, and to have felt that the end was at hand—at least some of her dying words would bear this construction, though one can never be perfectly sure that when dying people talk of their approaching decease, they fully mean what they say.

She took, so far as I could ascertain, no medicine, her dislike of doctors continuing to the last, and, according to her daughter, Mrs. Reeks, she was perpetually haunted by the dread that alcohol would be administered to her by the doctor in attendance; she could smell alcohol in however small amount it might be present, and she resolutely refused to touch it or anything containing it; indeed, her objection to medicine is said to be entirely due to her fear that it would contain alcohol. Well, poor old soul, she is gone, and though I am not sure that her life was particularly useful and honourable, it was interesting, and adds one to the many instances in which life has been protracted to a very advanced age without the use of alcohol.

That perplexing and hotly-debated question—Is alcohol useful to the aged?—cropped up again a year or two ago in the shape of some most learned and exhaustive articles from the pens of eminent sanitary authorities and physicians of European reputation, and furnished a text for many brilliant letters in the London press. The matter is still unsettled, that is to say that we still find ourselves without any large array of statistics which will put it to rest. Of course, in my opinion, and according to my long experience as a medical practitioner and an observer of English manners and customs, alcohol is not necessary to the aged. I believe that it does not do them any good, does not add to their enjoyment of life, and does not make them more likely to live on,

but I cannot prove my contention, because we have not sufficient facts at our command. Every aged person who lives in comfort to the age of ninety and upwards, and does not take alcohol, is cited by abstainers as an instance of the supreme value of total abstinence, while the moderate drinker, who can point to other old people who have regularly taken their small allowance, triumphantly asserts that the latter are cases proving the crowning importance of alcohol.

The minutest inquiry fails to give the undoubted superiority to either side, and there cannot be the smallest doubt that while the abstainer cannot establish his position by means of a formidable and unanswerable array of figures, not one whit more can the moderate drinker show that alcohol is necessary to the aged. In short, we have to suspend judgment at present, believing that, on the whole, the balance leans to the side of the teetotalers.

We need statistics drawn from a wide field and giving us the facts relating to some thousands of aged abstainers and non-abstainers. Such figures we do not possess, and we do not seem likely to have them. All this may be conceded without in the smallest degree trenching upon those matters which we may regard as finally settled—namely, that the smallest excess in the use of alcohol, although it may not affect all the persons who indulge, makes its influence felt to a most marked degree when considerable groups are compared—that is, that a few free drinkers, who do not appear to suffer from their excesses, may, by a careful system of selection, be pointed out by a person with a large circle of friends; but when a hundred free drinkers are taken at random, and a hundred abstainers, the advantages possessed by the latter—physiologically, economically, and morally—are overwhelmingly great.

But we abstainers are not disposed to admit that our cause hinges in the smallest measure on the fact that some moderate drinkers never indulge to excess, and that a few drunkards live to be eighty or ninety. Our argument is that it has never been proved, though often asserted, that alcohol is necessary in health and in disease at any time of life, so that total abstinence is absolutely safe. Were it not for drinking we should have none of the fruits of excess, none of the early deaths through drink, the accidents, crimes, sins, and waste of time and money, which can be traced to drink. The remedy for these evils is not moderation, but total abstinence.

Perhaps I should remind my readers that many intemperate people go on for years apparently little the worse for their excesses; but a closer insight into their cases will show that sooner or later, often the former, they break down, as a consequence of their habits.

Probably nothing would do the Temperance cause greater good than more often enlisting the aid of distinguished and competent medical abstainers on the platform—men accustomed to observe and reflect; this would be preferable to the somewhat random fashion of handling health statistics and physiological facts now in vogue, which, though it convinces and amuses a teetotal audience, almost always speedily leads to anonymous letters in the press, and often to charges of disingenuousness and unfairness, which are difficult to answer, and do incalculable harm; it is better to understate than to overstate one's facts.

Having got so far I venture to reproduce some facts and figures drawn up by a competent writer from the remarkable facts contained in the well known book on *Old Age*, by Sir George Murray Humphry, the illustrious Professor of Surgery at Cambridge.

"Recently I had the pleasure of reading a work, entitled *Old Age*, from which I had the curiosity to compile the undernoted statistics bearing upon the question whether the moderate use of alcohol is good or bad. The writer of the book, Sir George Murray Humphry, M.D., F.R.S., made a most exhaustive study of old age, and the statistics which I append, are derived from the consideration of 900 cases of persons who had attained the age of eighty years and upwards, including amongst that number seventy-four centenarians:—

PAST HISTORY OF PERSONS FROM 80 TO 90 YEARS.

	No. of Returns.	Total Abs.	Per cent.	Mdte. Dkrs.	Per cent.	Heavy Dkrs.	Per cent.
Males	... 298	28	9.39	225	75.51	45	15.10
Females	... 232	54	23.27	171	73.70	7	3.03
Total	... 530	82	15.47	396	74.72	52	9.31

PAST HISTORY OF PERSONS FROM 90 TO 100 YEARS.

	No. of Returns.	Total Abs.	Per cent.	Mdte. Dkrs.	Per cent.	Heavy Dkrs.	Per cent.
Males	... 67	1	1.49	58	86.66	8	11.95
Females	... 92	22	23.91	68	73.92	2	2.17
Total	... 159	23	14.46	126	79.25	10	6.29
Grand Total...	689	105	15.25	522	75.76	62	8.99

"From these figures I draw the following conclu-

sions:—Of 365 males who lived from eighty to one hundred years, 29 were abstainers, or 7.94 per cent.; 53 were heavy drinkers, or 14.52 per cent., 283 were moderate drinkers, or 77.54 per cent. Of females and males between eighty and ninety and between ninety and one hundred years, those who drink alcohol show better results at the greater age, thus:—eighty to ninety years, 15.47 per cent. are total abstainers and 84.53 per cent. are non-abstainers; ninety to one hundred years, 14.46 per cent. are total abstainers, and 85.54 per cent. are non-abstainers. Taking the total results, eighty to one hundred years, *viz.*, 689 returns, these show 15.25 per cent. total abstainers and 84.75 per cent. are non-abstainers; so that the chances of living from eighty to one hundred years are:—men, one total abstainer to 11.594 non-abstainers; women, one total abstainer to 3.264 non-abstainers; men and women, one total abstainer to 5.5557 non-abstainers. I do not think anyone will dispute the eminence of the authority from whom these statistics are derived."

The above is interesting and valuable; although the writer's conclusions are not to be taken without some qualification; and much would have to be cleared up as to the original size of the two classes—moderate drinkers and abstainers. Total abstainers are so rare in the richer walks of life that I should not be surprised were it to turn out that the aged total abstainers bear a vastly larger ratio to the teetotalers than do the drinkers to the users of alcohol; in other words, all said and done, an abstainer's chance of living to be ninety may be much greater than the moderate drinker's.

THE MANCHESTER SHIP CANAL AND THE IRWELL.

HAVING on several occasions directed attention, in these columns, to the standing menace to public health arising from the polluted condition of the river Irwell, and the still greater danger that must arise when this water is allowed to pass into the Manchester Ship Canal and docks, we are glad to know that the question has been brought before the House of Commons. It is a further source of satisfaction that the President of the Local Government Board stated that the matter is regarded as one of great importance, and urged upon the local authorities the

desirability of taking immediate steps to remedy the evil; failing which the Department would consider it a duty to interpose.

It is proposed by the directors of the Manchester Ship Canal to let the Irwell water into the canal and docks; in other words, to impound in the midst of a dense population (Manchester and Salford having a population exceeding three-quarters of a million,) more than 100 acres of a foul mixture, half of it practically liquid sewerage, which would be constantly stirred up by vessels going through.

Independently of the Ship Canal, it is high time that the inhabitants of the two great towns particularly concerned, should devise some adequate means of getting rid of what has for many years been a danger and a disgrace; once, doubtless, a clear stream, but now, and for a long period past, in such a filthy condition that the following verses, written in imitation of a well-known poem, scarcely suffice for its description:—

“I flow by tainted, noisome spots,
A dark and deadly river;
Foul gases my forget-me-nots,
Which haunt the air for ever.
I grow, I glide, I slip, I slide,
I mock your poor endeavour;
For men may write, and men may talk,
But I reek on for ever.

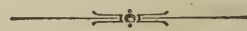
I reek with all my might and main,
Of plague and death the brewer;
With here and there a nasty drain,
And here and there a sewer.
By fetid bank, impure and rank,
I swirl, a loathsome river;
My breath is strong, though I am weak;
Death flows on me for ever.”

Some little time back, Mr. Phillips, a member of the Salford Town Council, suggested both in the Council, and in letters published in the Manchester papers, that the Irwell water should be purified before it is permitted to enter the Canal works. The following extract explains Mr. Phillips' plan, which has the merit of thoroughness.

“There being no hope of sufficient purification at the sources of pollution up the stream, the only practicable remedy is to treat the river water, before it enters Manchester and Salford, by running it bodily through a filtering or purifying process. Establish the necessary works outside the town, where the solid matter can be disposed of,

deviate the stream in times of ordinary flow for treatment, leaving the river bed open to carry flood water, which from its bulk could not be treated. As floods happen rarely they might be allowed to pass. I would seek powers to charge the cost of this treatment upon all local authorities, works, mills, &c., which pollute the stream, in proportion to their rateable value.”

There is nothing in Mr. Phillips' suggestion which engineering skill would be unable to carry out. We can scarcely go so far as to agree with him that there is no hope, or possibility, of purification higher up the stream, if local sanitary authorities did their duty, and manufacturers and other offenders showed more zeal for the public good; but there is some satisfaction in the proposed retributive arrangement which would impose the cost of purification, as far as could be done, upon those who polluted the river.



THE BRITISH AGRICULTURAL LABOURER.

A RECENT announcement in the daily newspapers that the farmers in Essex had decided, on account of agricultural depression, to still further reduce the already very low wages of their labourers to 10s., and in numerous cases 9s. per week, brought to our mind an incident which happened to us in the United States many years ago.

We do not hold in the slightest degree with the detestable doctrine of slavery, and, consequently, when on a tour in the Southern States a short time before the breaking out of the great civil war which preceded the emancipation of the slaves, we could not help becoming occasionally involved in warm arguments on the subject with plantation-owners, though we avoided the topic as much as possible; but, on one occasion, we found ourselves silenced and unable to continue the discussion.

With several other guests (for a planter's house was usually open to all travellers with good credentials,) we were seated smoking and chatting after dinner in a shady, cool verandah of the house of a hospitable cotton-planter, owning a large estate, near Richmond, in Virginia. “Coming events cast their shadows before them,” and the possibility of the abolition of slavery happened, as was not unfrequently the case, to crop up in the course of conversation.

After everyone had had his say, our host—as kindly, genial a man as ever breathed—quietly pointed to a distant group of his slaves merrily engaged in dancing and singing to the accompaniment of various negro instrumentalists, and asked us if, anywhere that we might name in England, there could be at that moment a happier, healthier, livelier set of field-workers. We were bound to answer in the negative, and to admit the force of this object lesson argument; the more so, because in the earlier part of the day, while our host had ridden on horseback into Richmond, and the bulk of the negroes were busily engaged in the cotton-fields, we had made, under the guidance of one of his sons, a close inspection of the quarters occupied by the slaves—a plain, but substantially erected building a short way from the owner's mansion,—and had arrived at very favourable conclusions as to the arrangements made for the domestic comfort and proper housing of the negroes, including those who were too old for out-door employment. Without appearing to notice that a sudden silence had fallen upon his British and Northern visitors, our host continued his remarks. “Each of those active, merry fellows,” said he, “is worth from 400 to 1500 dollars. Is it likely that I should starve him, that I should overwork him, or that I should neglect him when ailing? Do your English gentlemen starve, ill-treat, or neglect their valuable horses? No, certainly not. But when I was in England a few years ago, I observed for myself the condition of the agricultural labourers, and I will not say more than that my opportunities were considerable in Cambridgeshire and Essex.” Here he ceased, and we all gladly dropped the subject and soon after, taking our big straw hats and lighting fresh cigars, strolled out into the grounds, so as to get near enough to the negro melodists to hear them sing their quaint ditties. Our planter-friend fell in a skirmish early in the war, but we cherish his memory as warmly as if he had died but last year; and reading of the unfortunate, poverty-stricken, half-starved Essex labourer, trying to maintain himself, his wife and several children on 9s. a week, barely a shilling a day—not so much indeed, after paying his rent,—the incident which we have narrated came to our mind as vividly as if it had happened but yesterday, instead of far back in the “fifties.”

THE EDITOR.

NEWS AND NOTES.

The Cholera.—Reports from the Continent show that so soon as the epidemic abates in one locality it breaks out in another. Some idea of the extent of the infected and suspected areas may be formed from the following list of ports from which vessels arriving are under specially close inspection at English ports of arrival:—Hamburg, Rotterdam, Amsterdam, Antwerp, Constantinople, all ports in the Black Sea and Sea of Azoff, all Russian ports in the Baltic Sea and Gulf of Finland, all Italian and Southern French ports, and all ports in the North of Spain. In England cases occur here and there, with startling abruptness, keeping local authorities in a state of constant vigilance.

Instruction in Practical Sanitation.—The technical instruction committee of the Essex County Council have sent us a prospectus of the lectures on Sanitary Science, for sanitary inspectors and others. These lectures will commence on October 5th, and will be held at Chelmsford. They will not only be free, but travelling expenses to the extent of 2d. per mile one way will be allowed to the selected persons who regularly attend. The lecturers appointed are Dr. Thresh, M.O.H., Essex County Council; Mr. Percy J. Sheldon, A.M.I.C.E., Chief Surveyor, Essex County Council; Mr. T. S. Dymond, F.C.S.; and Mr. David House, F.L.S. Further particulars can be had of Mr. J. H. Nicholas, Secretary, 35, New Broad Street, E.C.

Soon Cured.—A remarkable trance story comes from Hungary. A girl at Miskolcz pretended to see the Holy Virgin daily, and to have conversations with her. Superstitious people in the locality flocked to the house where she lived, of course taking presents with them. Recently the would-be saint lay in a coffin covered with a shroud, and her mother (who was a party to the lucrative imposture) informed the visitors that the Virgin had told the girl to die, and that on the third day she would be resuscitated. The excitement was great, and thousands of persons came prepared to spend the three days in prayer and fasting. But the local authorities attended with a doctor, who soon altered the scene, for, in the crowded room where the girl lay, he remarked audibly:—“It is very serious that she died so suddenly. We must have a post-mortem examination.” Immediately, the girl sat bolt upright in the coffin, exclaiming, “Oh, don't cut me up; I can be resuscitated at once;” which she unmissably was. She was subsequently removed to the prison hospital, in order that her sanity could be inquired into.

ANSWERS TO CORRESPONDENTS.

Influenza.—A lady correspondent, writing from Belfast asks us what the *feelings* of a sufferer from this affection are like. Happy ignorance! Evidently our feminine friend has never had an attack of this complaint, and we think that she will heartily echo our hope that she never will, when she reads the following graphic description from the pen of a gentleman who suffered from influenza three years ago:—"Five weeks' blank effacement, with a brain incapable of dictating an idea, with constant pain, brow-ague, &c., and the knowledge that your work is going hopelessly wrong, is bad enough, but the depression is overwhelming. There is no light, warmth, hope, or comfort in the world. I could not wish it to my 'dearest foe'."

W.S.—The notion is a good one, but we do not know whether it has been thought of before. As to searching at the Patent Office, and ultimately taking out a patent, you could not do better than apply to the International Patentees' Agency, 55 and 56, Chancery Lane, London.

B.M.—The best quality of vinegar is that made from wine next to which comes that prepared from pure malt. Vinegar is an article very frequently adulterated or imitated, the most common substitute being acetic acid, coloured.

Cholera.—Dr. J. Barker Smith (Dulwich) writes, with reference to the articles on Cholera, published in *HYGIENE* for September 8th, 15th, and 22nd, to point out that (1) the experiments recently conducted by Dr. Ivanoff, of Sofia, show that eight parts of strong sulphuric acid will kill all cholera germs in ten thousand parts of sewage; (2) that similar results are obtainable as regards other germs, according to the researches of Professors C. von Nägeli and Hans Buchner, of Munich; (3) that he has prescribed for many years in the treatment of diarrhoea, a mixture of sulphuric acid with catechu, opium, and chloric ether, which was a combination found efficacious; (4) he also advises the use of sulphuric acid, with permanganate of potash, as an injection, in the strength of three drachms of Liq. potass. permangan. and three drachms of Acid. Sulph. dil. in a pint of water, as worthy of trial.

A Sanitary Inspector.—We have always maintained the opinion, that, as a class, Sanitary Inspectors are very underpaid, and we have also advocated in the columns of *HYGIENE* not only increase of salary, but improved status. An article on this subject will shortly appear in our columns.

An Author could get his pamphlet printed and published by our publishers on moderate terms.

G. H. M.—The average quantity of solid matter in a gallon of sewage (70,000 grains by weight) is 88 grains.

Cambria.—We shall be glad to hear from you further. The matter is one which demands early rectification.

A Student.—You would find it worth while to read the chapter on Medical Geography in Dr. Aitken's *Science and Practice of Medicine*, Vol. II.

Architect.—You can get the Act of Parliament at Spottiswoode's.

P.H.—Relapsing fever is essentially a febrile affection connected with poor living, and its propagation is facilitated by impure air, want of cleanliness, and similar insanitary conditions.

Aliquis.—The objectionable smells from the street openings of the drains is apparently due to an insufficient number of ventilating shafts from the sewers.

S.A. (Edinburgh).—Vol. vii. of *HYGIENE* commenced with the number for May 13th. All the back numbers to that date are in print, but the brisk demand will soon exhaust the stock.

 EDITORIAL AND PUBLISHING

NOTICES.

EDITORIAL.—The Editor begs to express his thanks to numerous correspondents, and to state that he will be pleased to receive any articles or correspondence coming within the scope of *HYGIENE*, books or pamphlets for review, reports of medical officers of health, items of general or local sanitary interest, newspapers (marked at the part to which it is desired to draw attention), etc.

ADVERTISERS are requested to bear in mind the greatly increased circulation of *HYGIENE*, with its weekly issue and reduced price. In addition to the large, regular circulation, many thousands of copies are distributed annually to sanitary officials, medical men, private addresses, public libraries, clubs, hotels, &c.

HYGIENE,

A SANITARY PAPER.

VOL. VII.]

FRIDAY, OCTOBER 13, 1893.

[No. 22.]

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COUNTRY LABOURERS' COTTAGES.

EVEN those philanthropists who devote much time and energy to the improvement of the condition of the dwellings of the poorest classes in our towns, have little idea of the insanitary state of many of the cottages inhabited by the working population of our rural districts.

Some time ago it was asserted in print by an able sanitary inspector in Oxfordshire, that if the standard cubic space of air required in our workhouses, namely, 300 cubic feet for each adult, were enforced in agricultural labourers' cottages, it would be found necessary to close 80 per cent. of the existing dwellings provided for the accommodation of the poor. This assertion is very startling, but it is fully borne out by the following extracts taken almost at random from the Report of the Commission on Agricultural Employment, published some years ago.

"It is lamentably evident, that though much has been done towards remedying the omissions of past generations in this respect, a large proportion of the agricultural labourers throughout the country are still housed in dwellings in which they cannot fail to be subjected to great and serious discomfort, and in which the decencies of life are often impossible." . . . "The majority of cottages which exist in rural parishes are deficient in almost every requisite that should constitute a home for a Christian family in a civilised community." . . . "Modesty must be an unknown virtue, decency an unimaginable thing, where, in one small chamber, with the beds lying as thickly as they can be packed, father,

mother, young men, lads grown, and growing-up girls, two and sometimes three generations are herded promiscuously."

In one return, the labourer's cottages are described as "miserable;" in a second, as "deplorable;" in a third, as "detestable;" and speaking of a fourth district, failing to find words expressive enough, the Commissioners remarked that the cottages were a "disgrace to a Christian community."

Turning with a shudder of horror and disgust from these reports, we take up the annual report of a medical officer of health in a western county, and there we come across the following graphic description of the houses of the poorer classes in his locality; not so revolting as those already quoted, but still, showing the necessity of prompt improvement. "Nearly all the houses are built on a level with the ground, or even lower, with a step down into them, and no precaution is taken to put a waterproof course of bricks above the surface of the ground, so as to prevent the damp ascending the walls from the earth. These two oversights make the house-walls and floor damp, the dampness of the upper floor"—the cottages being only one storey high—"being ensured by the absence of spouting under the tiles, the dripping from which easily soaks through the thin walls. Another thing that requires attention is, that the bedroom windows are generally so made as not to open. In this way the upstairs rooms are necessarily kept in a foul and unwholesome condition. This, with the lowness of the rooms, makes them very unhealthy. Added to all, we have the crowded state of the cottages, and the dirt and neglect of sanitary arrangements in many of these small

houses." The medical officer of health, whose statements we have quoted, has to do with what may be considered an exceptionally good district, as compared with many we are acquainted with.

Evidently there is plenty of real work to be done for the remedy of this unsatisfactory condition of things in the rural parts of England; involving no great individual expense to the respective owners of property, yet sure to be productive of immense and immediate results. With regard to the defective construction of the cottages, it is the obvious duty of the proprietors, either to improve existing dwellings, or to erect new ones. As to the careless, dirty habits of some of the cottagers, that is rather to be attributed to the state of the houses, little better than pig-styes, in which they live. Our experience of the agricultural poor, and it is by no means a limited one, is that, similarly to the case of his town brother, if you give a working man a comfortable home, no matter how humble it may be, you place him in circumstances conducive to his physical and moral welfare; and it will not be long before his improved condition will prove an advantage to those around him as well as to himself.

Rural England is not, and never will be, the Arcadia which our poets and novelists delight in depicting; but, at any rate, much may be effected for the amelioration of the dwellings of the agricultural poor, and this amelioration would soon show a remunerative return by diminishing the rates, as well as by promoting the well-being of society at large.

M.P.

CREMATION.

By the EDITOR.

ABOUT two years ago we were taking an afternoon stroll along one of the many pleasant country lanes in Surrey, hardly known to Londoners, although within half-an-hour's ride by rail from Waterloo, when the fancy took us to turn out of the road along a footpath leading through the fields in the direction of the little village of Morden. The day, though warm, had not been sultry—Nature was at her best, even for June; and as we wandered along, thoroughly enjoying the calmness of the scene, the quiet being broken only by the occasional rushing of our dogs into the waving grass in vain pursuit of some real or imaginary object, and by the melodious strains of song warbled by the feathered survivors of the cruel, long frost of 1890-91, we contemplatively puffed away at our meerscham, and felt at peace with all men,

forgetting, too, for the moment, that within a mile of the fields we were traversing the railway company had, some fourteen months previously, nearly succeeded in knocking our head off our devoted* shoulders, by the exceedingly simple, though highly dangerous, process of dashing a heavily laden goods train against a passenger train (in which we were travelling) rendered stationary by reason of its engine having gone off the rails.

But, suddenly, a sharp reconnoitring bark from our little terrier, known as Thistle (partly because the mother's name was Nettle, and partly because "*Nemo me impune lacessit*" is the *motif*, as they say in music parlance, of Thistle's life), aroused our attention, and caused us to become conscious of the distant hum of voices and sound of busy work, as if some human hive had been magically awakened into activity in this still retreat. As we hastened forward we came upon groups of men, some digging trenches and throwing up earth mounds as only British navvies can, others carting the earth away, others, again, erecting large brick buildings; all so energetically employed that we almost began to despair of finding any one sufficiently at leisure to give us any information. Just then we caught sight, some little way off, of an old fellow, whose manner, as he idly reclined his yet stalwart form against the trunk of a venerable elm, clearly indicated that though worn with work, he was filling in the interval between adolescent life and senile decay by earning his subsistence as a caretaker. To him we promptly directed our steps, and by a little questioning, aided by the largess of "the price of a pint," so favourite and potent an incentive to the rustic mind, we ascertained the nature of the operations going on around us. "Why, Lord bless you!" he ejaculated, with a look of profound wonderment at our ignorance, "don't you know that this is going to be the Battersea new burying-ground?—what you gentlefolk" (the price of a pint was beginning to work) "call a cemetery." He did not quite say "cemetery," for he had been born many years before school boards vexed the souls alike of village parsons and hob-nailed "crowtenders" (one of the latter of whom he had doubtless been in his boyhood days), but we caught his meaning. As he continued, warming to his subject, with an appreciative glance now and then at Thistle, who, convinced that we had not fallen amongst foes, lay near our feet, blinking lazily at the rays of the setting sun, we gathered from him that the great metropolitan parish of Battersea had acquired possession of an estate of one hundred and

* DEVOTED, *strongly attached*; see Nuttall's Dictionary.

thirteen acres, and that the ground was being rapidly prepared for the interment of any of the hundreds of thousands of parishioners who might be brought thither, as their last home. With a sly look at our damaged frame, which had not fully recovered from the shock of the railway accident already alluded to, the old fellow wound up his narrative with the observation, "But they ain't strict on that score, for they would take you or any other stranger to the parish for a bit extra." His dull grey eyes twinkled as he said this; whether in consequence of the obvious wince we involuntarily made at the old man's shrewdness in detecting a likely candidate for the Battersea burying-ground, or through calculating the "extra bit" which would devolve to the parish, we did not stay to determine.

As we concluded our walk, not altogether enlivened by our unexpected discovery, our thoughts naturally turned to the various modes of disposal of the human dead. "The worst use you can put a living man to is to hang him," was the remark once made by an eminent opponent of capital punishment. We would venture to paraphrase this opinion by saying, "The worst use you can put a dead man to is to bury him." London alone furnishes a death-roll of more than one hundred thousand persons annually. The total period occupied in the decomposition and destruction of a human body disposed of in the ordinary way is twenty or thirty years. Imagine the horrible condition of things, the danger involved to the living, by the slow putrefaction of, say, ten years' London dead, or a million bodies in various stages of decay and disintegration into noisome gases, poisoning the water that the survivors drink, the very air that they breathe. "Imperial Cæsar, dead and turned to clay, may stop a hole to keep the wind away;" but, before arriving at this degree of usefulness, every corpse, be it that of an emperor or a camp-follower, must go through many years of slowly rotting away.

One hundred and thirteen acres taken for ever from useful agricultural or horticultural purposes, and dedicated to the gruesome functions of the charnel-house! And this, too, be it remembered, for a single metropolitan parish. Some years ago, the late Bishop of Manchester, having occasion to consecrate a cemetery, observed, "Here are one hundred more acres of land withdrawn from the food-producing area of this country for ever. Cemeteries are becoming not only a difficulty, an expense, and an inconvenience, but an actual danger. I hold that the earth was made, not for the dead, but for the living. No intelligent faith can suppose that any Christian doctrine is affected by the manner in which, or the time in which,

this mortal body of ours crumbles into dust and sees corruption."

The opposition to the universal adoption of cremation as the means of disposing of the dead is based upon three sets of objections, namely, religious, sentimental, and legal.

We need not spend much time in discussing the first-named, as the quotation which we have made from the late Bishop of Manchester's speech, to our mind, fully disposes of the religious arguments against cremation. There are a certain number of people who still believe in ghosts, which they invariably clothe in their imaginative descriptions after the fashion of the deceased—in armour, periwigs, ruffles, blue coats with brass buttons, black satin dresses, mob-caps, &c., according to the period in which the dead person, who condescends to put in a ghostly appearance, flourished. "In the same figure, like the king that's dead," says Bernardo, in *Hamlet*, when the apparition of the murdered sovereign presents itself to his affrighted gaze and that of his comrades. "Such was the very armour he had on, When he the ambitious Norway combated," adds Horatio, as another circumstantial clincher; and all the three comrades promptly arrive at the conclusion that the spectre of Hamlet's father has passed before them. Such narratives suited the superstitious minds of Shakespeare's time, and afforded excellent opportunities for the display of his marvellous dramatic powers; but the number of persons at the present day, outside the walls of a lunatic asylum, who implicitly believe in the possible existence of ghosts of former living beings—not to mention the ghosts of armour, clothing, walking-sticks, &c.—must indeed be small. Equally limited, too, in number, must be those persons whose religious doctrines are of such a material character that they put credence in the notion that the dead will rise again in the same condition as that in which they were during their lifetime.

The sentimental objections to cremation are mainly due either to ignorance of facts, or to that apathetic indifference which leads people to blindly accept the statements of others, without any endeavour on their own part to ascertain the correctness of such statements. Any one who has had an opportunity of witnessing the orderly, decorous, and reverent manner in which cremations are carried out at Woking, under the regulations of the Cremation Society, would admit that all arguments on the ground of sentimentality are cut completely away. A process by which the "corruptible body," spoken of in the Burial Service, is, within the space of about an hour, rendered absolutely innocuous, both the

corpse and the light shell in which it was contained being, at the end of that time, converted into five or six pounds of pure white ashes, must, even on the narrow ground of sentimentality, be preferable to that of enclosing the body in a coffin, and then abandoning it to undergo slow decomposition. When the crematory process is ended, these ashes are collected, and can be either deposited in the ground, where they take up little room, can do no harm, and soon become incorporated with the earth, or they can be preserved in urns placed in niches with suitable inscriptions.* As indicating the progress which cremation is making in Germany, we may mention that in 1890 the Urn Hall, erected by the Berlin Cremation Society in the Friedrichsfeld parish churchyard, to receive the ashes of the dead without distinction of sect, was consecrated in the presence of representatives of the municipal authorities.

At first sight, the legal difficulties in the way of the universal adoption of cremation seem of a more serious character than those which have been already adverted to. But these, too, will melt away if regarded and treated from a practical point of view. It has been urged that the destruction of bodies, so soon after death, will open the door to an increase in the number of cases of criminal poisoning, in consequence of the greater immunity from detection. At present, if suspicions should arise of foul play, an order can be obtained from the Home Office authorising the exhumation and examination of the body. But, as a matter of fact, exhumation is exceedingly rare, as shown by a return which was procured, at the instance of Sir Henry Thompson, by Dr. Danford Thomas, Coroner for Central Middlesex, from 317 out of the 334 coroners in England and Wales, including all of the most important districts. The object of the inquiry was to ascertain the number of exhumations made during the previous twenty years. In all, they amounted to only 102, from which data it may be estimated that the annual number throughout England and Wales was only 5. The verdicts returned by the juries at the inquests held in these 102 cases were as follow: Natural causes, 57; accidental causes, 20 (these and the foregoing constituting three-fourths of the total of exhumations); murder, 13; manslaughter, 4; and open verdicts, 8. Very few of the cases where death was traced to criminal causes, were due to poisoning. The protection against criminal poisoning afforded by the facility for exhumation, of

which the opponents of cremation make so much, is therefore considerably overrated.

Moreover, although people talk glibly of the advantages which exhumation presents, in facilitating the detection of crime, they appear to forget that all traces of poison are rapidly removed after the body has been placed in the earth, and that, as a result, the chance of finding the poison, even a short time after burial, is small. This is especially the case with the powerful vegetable alkaloids, such as morphia, atropine, &c., which undergo rapid change. In fact, the only poisons which can be, with any degree of certainty, traced by post-mortem examination after exhumation are the three metallic ones—arsenic, mercury, and antimony.

But, as Sir Henry Thompson pertinently puts it in his book on *Modern Cremation*, "Exhumation is, at the best, a clumsy effort to rectify culpable want of care before burial." Many thousands of bodies are actually allowed to be interred in this country without any medical certificate being previously demanded, amounting in one year, of which Sir Henry gives the statistics, to 3·5 per cent. (35 in every 1000) of the total number of burials. The time at which the cause of death should be definitely and positively determined is as soon after death as possible. Our system of inquiry into the causes of death is inferior to that of France, Germany, and other European countries, where the dead body is examined by a medical officer specially appointed to that duty, known as the *médécin vérificateur*. When a death is reported in Paris, the civil officer communicates with the *médécin vérificateur* of the district, and awaits his report to decide, in concert with the deceased's relatives, at what time the burial shall take place. The medical officer visits, without delay, the address given to him, and makes a written report, in which he details all the ascertainable necessary facts relative to the death, obtained by inquiry, as well as those which result from the examination of the body, in accordance with the schedule used on such occasions.* This officer (who has, of course, had no professional relation with the deceased) states in his report the name and address of the doctor who attended the deceased, of the chemist who supplied the medicines prescribed, and of the nurses, if any were employed. He further records the hygienic condition of the house, and other circumstances. Until this inquiry has been completed, the facts recorded, and official permission granted, no interment is allowed to take place.

* In connexion with this subject, see *Gardens of Rest: the Cemeteries of the Future*, by the Rev. W. Armstrong Willis, in *HYGIENE* for June 9th, 1893 (Vol. vii., No. 4.)

* A complete copy of the French schedule will be found in Sir Henry Thompson's work.

A proper inquiry of this description leaves no means untried of determining the cause or death. If such a system were adopted in this country, the last argument against cremation would be swept away.

It would be obviously unfair to hold cremationists responsible for any shortcomings in our system of registration of causes of death, but it may here be mentioned that the Cremation Society of England does its best to remedy these by the exercise of strictness in the conditions to be complied with before the use of the Woking Crematorium is granted. The Society does not permit the cremation of the body of any one who has not, during his lifetime, or by will, expressed a desire to be cremated after death; and, instead of only the usual certificate of cause of death from one medical man, a second special certificate from another qualified practitioner is required. Further, if no doctor has attended the deceased, the Society insists upon the cause of death being ascertained by a *post-mortem* examination conducted by a medical officer appointed by the Society, unless a coroner's inquest has been held, and a satisfactory verdict has been returned. It will thus be seen that there is actually less risk of crime going undetected in a case of death, where the body is cremated, than when it is buried.

The cost of cremation is a subject on which much misconception exists; for it is commonly supposed to be very high, though such is not the fact. At the Woking Crematorium the total expenses, including the charge for the use of the crematorium, the fees of the attendants, and all other items connected with the ceremony, are fixed at £6. The cost would be diminished if the crematory were more used, as the amount of labour and outlay involved in a single cremation would be triflingly increased if the process were repeated for several other cremations.

The process which cremation has made in England is slow, but steady, like that of all innovations—however excellent—introduced into a country where new ideas are regarded with suspicion and prejudice. Twenty years ago, only, no attention had been given to the practical application of a system of disposing of the dead which was held in favour by the ancients. Its modern use was first broached in Italy, where it has gained rapidly in public estimation. The first Italian crematorium was erected at Milan in 1874, and a considerable number of bodies have since been cremated there, in addition to which more than forty communes have provided crematories for the use of their inhabitants.

France, Germany Austria, and the United States have

been less slow, too, than England in adopting this method. More than five hundred bodies were cremated in the first eight months at the crematorium built in the cemetery of Père-Lachaise by the Municipal Council of Paris.

In this country, chiefly in consequence of Sir Henry Thompson's advocacy through the press, an association, called the "Cremation Society of England," was established in 1874, for the purpose of making known the principles and advantages, and promoting the practice, of cremation. Its members have not attempted to force public opinion; on the other hand, they have merely sought to gradually lead it. The opposition which the supporters of cremation had to encounter has been enormous. In 1884, Mr. Justice Stephen greatly strengthened the legal status of the Society by delivering judgment in a Welsh case to the effect that cremation was perfectly legal provided that it was effected without causing a nuisance. Shortly after this decision, the subject of cremation was brought before the House of Commons by Dr. Cameron, M.P. for Glasgow, who introduced a Bill "to provide for the regulation of cremation and other modes of disposal of the dead." Dr. Farquharson, M.P. for Aberdeen, and Sir Lyon Playfair, M.P. for the Edinburgh and St. Andrew's Universities, ably and eloquently supported the Bill; and, although the Government gave it most strenuous opposition, 79 members voted in favour of it in the division on the second reading, while there were 149 votes against it. The public mind has since been so much more enlightened on the subject that there would be little doubt as to the result of a division whenever a similar bill is again introduced.

The Woking Crematorium was used for the first time in 1885, since which period between 400 and 500 bodies have been cremated, including the late Baron Huddleston, Mr. Kinglake (the historian of the Crimean Campaign), the Duke of Bedford, and Mr. James Beal, for many years prominent in all movements having London municipal reform for their object, as well as many other well-known persons.

Sewage Purification by Electricity on a large scale has been talked of. It has been discovered that when a powerful current is passed through a tank of slightly salted water, hydrogen is set free, rising to the surface of the fluid, while chlorine and ozone remain in the solution. If the fluid be then run gradually into the sewer it will act as a powerful disinfectant and deodoriser. Sewage effluent may be similarly treated in tanks.

BRITISH HEALTH RESORTS.*

No. 7.—MALVERN.

By WALTER TYRRELL, M.R.C.S., L.S.A., *Medical Officer of Health, Malvern District.*

LONG before certain far-seeing enthusiasts established cure by water as a panacea for all human ailments, and filled Malvern to overflowing with a vast crowd of witnesses to their skill or their acumen, before Simon de Montfort encamped his troops on the Herefordshire Beacon prior to his last disastrous fight at Evesham, before even the holy Saint Wolstan scooped out his Hermitage on the hillside, and settled down as the first resident, Malvern had in one way or another a considerable reputation as a health resort. It is true that in those days its votaries were few in number, and consisted for the most part of the simple bucolics of the neighbourhood, who sought from its healing waters relief from their ailments, for in those days it is to be noted that it was always water which was best, and it was to its healing action that were attributed all those good results which were in reality due to pure air and equable temperature. Many quaint rhymes and mediæval adages still point to the strong belief which formerly testified to the health-giving properties of this celebrated spot.

A stranger approaching Malvern from the east is at once struck by the boldness of its hill outline, and the steep, almost precipitous, front which overlooks the wide valley at its foot. Indeed, for natural beauty it can fairly challenge any similar resort in England; or even on the wider area of the Continent. Whether visited in spring, when the hillsides are clothing themselves in a "livelier emerald" and the yellow tufts are breaking from the furze, presently to blazon forth into sheets of golden blossom; or whether later in the season, when we are glad to seek the friendly shelter of St. Anne's or the Holy Well; or whether when, autumn past, the first wintry touch has tinged the oak woods with a sterner brown, Malvern is always beautiful—and not Malvern alone; the whole surrounding country is as full of interest as of beauty, and the botanist, the geologist, and the antiquarian can all find rich material for research and reflection.

It is, however, not on account of its natural beauty, or for its scientific or archæological interest, that Malvern can lay the strongest claims to popular recognition. It is on account of certain qualities of air and climate which are, as I shall presently show, dependent on its peculiarly favourable position. The hills running nearly due north and south, and the town of Great Malvern being situated on the eastern slope of the range, at an elevation of about 500 feet, it follows that every ray of morning sun is poured on the sparsely covered syenitic rock at our back; this, like a large firebrick, retains the heat during the day, and radiates it during the night, tempering the cold natural to the latter. It is thus that Malvern enjoys the dry equable climate which constitutes its chief value as a health resort; and it is also probably from this cause that Malvern never experiences any of the rapid alterations of thermometer to which other places are so liable. Nor, although we face the east directly, can Malvern be called a cold place; in severe weather the temperature is always from 10 to 12 degrees higher than that of the lower-lying towns in the valley. Again, it is only necessary to glance at the position of the town to recognise the great advantages which it derives from its situation. Lying directly on the slope of the hill, with no similar elevation in front to retain the cloud and moisture blowing over from the west and south-west, and with no river within four miles, the dryness of the air is not to be equalled. Now, in all those diseases originating in disordered function, and which are liable to be so greatly affected by sea air and relaxing climate, it is easy to understand the important influence which Malvern exercises; I may mention especially nervous affections and all gouty and rheumatic derangements, with their various complications and sequels.

Further, the beneficial action of Malvern air is never more manifest than in those forms of congestive disease of the lung which precede and induce the phthisical tendency; indeed, if we examine the death rate of Great Malvern, and compare it with those of other less favourably situated watering-places, we cannot fail to be struck by the marked immunity which we enjoy from this class of pulmonary disorders. Thus, comparing Torquay with Great Malvern during three successive years, we find that the deaths per 1000 from pleurisy, bronchitis, pneumonia, were as follows:—

Torquay	...	...	...	3'77	3'11	2'80
Malvern	...	...	...	0'66	2'00	1'00

Again, there are many disorders, especially those which arise from long-continued residence in crowded towns, or the malarial atmosphere of low-lying districts, which are

* The places already described in this new series are—No. 1, Swanage (with illustration), *HYGIENE*, May 13; No. 2, Lowestoft (with illustration), June 16; No. 3, Clacton-on-Sea and Walton-on-the-Naze, July 7; No. 4, Yarmouth (with illustration), August 4; No. 5, Ilfracombe (with illustration), August 18; No. 6, Cromer (with illustration), August 25th.

marked by great physical depression, often attended by a corresponding mental gloom. To the person who long in "populous city pent" seeks Malvern for a change, the dry bracing mountain air and exhilarating surroundings give an almost immediate relief; new and unknown energies are aroused within him, his sleep is more sound and refreshing, he walks with a more elastic step and ceases to feel fatigue, his appetite, formerly so sluggish, is restored to its old keenness, and life altogether wears a new and brighter aspect. It is especially with regard to its influence upon the more depressed forms of nervous derangement that I would remark upon the beneficial effects of a residence in Malvern. The changes which result even in limited periods are most marked, and are, I think, easily explainable. The influence of high altitudes on the spirits is well known, but when this is combined with other and very favourable circumstances, such as I have already mentioned, and which go to make up the total of Malvern surroundings, we need not be astonished when we note the undeniably strong influence which this climate exercises on patients suffering from mental depression, and the other outcomes of nervous exhaustion. In all such cases there will be found a more or less sluggish functional power of the internal organs. The battery, the brain, itself lowered in its dynamic force, supplies with feeble current the proper nerve supply to all organs which derive from it their vital force; in consequence of this, the economy of life is carried on under serious difficulties, digestion is impaired, and the function of the liver being imperfect, as a necessity elimination, or the separation of waste material from the body, is not efficiently carried on, and the acids and vitiated secretions being undischarged remain to poison the blood, and by their poisonous effects on the delicate tissues of the brain distort the mental processes, and cloud the mental mirror.

No doubt, in all such cases, there is a predisposing deficiency of nerve power, which not only induces the sluggish condition of function which we observe but also permits the deranged state of blood so far to overwhelm the mental control as to give rise to depression of varying degrees of intensity.

Now, in all these cases, and, indeed in all those nervous disorders which have their origin in exhausted states of the nervous constitution, the first thing needful is to place your patient under the most favourable hygienic circumstances; to take care that the economy of life is carried on at as small an expenditure of vital force as possible; that he shall breathe the purest air, drink the purest water, eat the most nourishing food in properly regulated

quantities, and that his surroundings generally shall be invigorating and cheerful, though quiet and unexciting.

Again, in many of these depressed forms of nervous disorder, we shall find that much benefit is to be derived from the use of that form of medical heterodoxy known as hydropathy. That this system of treatment contains most valuable aids to medicine no one can deny; the mistake which has been made has been to dissociate it from the ordinary system of medicine, and to endeavour to establish it as a panacæa. In this respect Malvern offers the advantage of all the necessary appliances for carrying out a systematic plan of reactive treatment by means of water, bathing of every description being easily obtained.

Children, especially those of strumous constitution, thrive wonderfully in Malvern, as is plainly testified by the large number of schools for either sex, which not only exist but flourish. The marked immunity from zymotic disease which admirable sanitary arrangements have procured for us, may to some extent account for this. It is highly important to bear in mind how much the future health and consequent happiness of our children may depend on the physical influences to which they are submitted before their constitution is formed; how many bad or defective points may be eradicated or repaired; how many unhealthy predispositions removed, and the old Roman standard of the "*Mens sana in corpore sano*" thoroughly established. The physical influences of early life are found not only in the body, but also in the mind.

All meteorological statistics, unless they extend over a very long period of time and embrace a wide observation of phenomena, must be more or less open to fallacy; but the evidence which Nature supplies in the forms of vegetable life with which she clothes more favoured spots, is of incontestable value. In Malvern the beauty and luxuriance of the growth of evergreens, many of them of a most delicate nature, are, I believe, unsurpassed, and form a positive proof of the mildness and equability of the climate.

In concluding this article, I would briefly recapitulate some of my statements. My object has been to point out that Malvern, from the unrivalled advantages of its situation, possesses unequalled claims as a health resort; that the equability of its climate, the purity and invigorating properties of its air, and last, though not least, the exceptional purity of its water, afford natural aids to the treatment of disease which no other place in England can surpass.

To those who have no need to seek health by change or travel, I would say, try Malvern for a holiday trip, and they will, I feel sure, never regret having made the experiment.

WATER FILTRATION AND CHOLERA.

By PROFESSOR R. KOCH, of the Institute of Infectious Diseases, Berlin.

(Translated from the German.)

WATER has very generally been recognised as an important means of propagation and maintenance of cholera, without our being able to arrive at a practical decision as to its value. It was entirely ignored by some investigators, by others greatly over-estimated.

The recent cholera epidemic has called forth a very large contribution to this subject, but has by no means afforded a satisfactory solution. The three towns, Hamburg, Altona, and Wandsbeck, forming in fact one large city, are identical in all their municipal arrangements with the single exception of the water supply. Wandsbeck receives filtered water from an inland lake exposed to the pollution of factories; Hamburg receives its water, unfiltered, from the Elbe above the city; and Altona, filtered water taken below the city. Hamburg was so terrifically scourged, Altona and Wandsbeck remained unscathed with the exception of the few cases imported from Hamburg. The most remarkable thing is the condition as regards cholera on the boundary between Hamburg and Altona. On both sides the houses, population, canals—in fact everything which would here interest us—were identical; and still the Hamburg epidemic was without fail halted on the boundary. One or two thickly populated tenements in Hamburg (filled with labourers), which were supplied with filtered water from Altona, escaped unharmed, while all around the scourge claimed numerous sacrifices. All the factors were identical, with this simple exception—the water supply. An experiment could not be made in the laboratory with more precision than this, performed upon hundreds of thousands of human beings. When we consider that the water used by Altona contained the additional pollution of the sewage of eight hundred thousand people, while Hamburg's was taken from above the city, the only explanation we can make of the exemption of Altona from the plague is that *Altona was protected from the cholera epidemic by its filtered water*. For the bacteriologist, who knows that the cholera bacilli can be removed from water by filtration, this explanation will suffice. The localistic

idea, while recognising the great importance of this difference between Hamburg and Altona, is not in accord with the simple explanation of the bacteriologist, but claims as follows (Pettenkofer): "The unfiltered water contained contaminating elements, which it brought into the houses and streets, and thus prepared a suitable nidus for the development of the cholera germ. Thus the water had not directly infected, but only induced a disposition to infection." Against this idea is to be considered how infinitesimal is the amount of refuse brought into houses by the water, even in the most unfavourable instances, as compared to that produced on premises by man and beast. Furthermore, it must be remembered that Hamburg has a most perfect system of sewers, which take the sewage immediately beyond the city limits. Whatever may be the idea of the "localists," they also recognise the fact that the filtration of Altona's water proved to be a very efficient protection. To this question we must now turn our attention.

For the better understanding of the following we must here consider some technical aspects of filtration by means of sand beds. The actual filtration of the water does not take place in the sand beds themselves, but a quickly deposited slimy stratum from the still uncleaned water forms the real filtering medium. This forms in from eight or ten to twenty-four hours. In time it becomes so thick and impenetrable that it must be removed.

In this way the thickness of the sand layer is diminished; for a thorough filtration at least thirty centimetres (one and one-fifth inches) of sand must be passed. Furthermore, not more than one hundred millimetres should pass over the filter in an hour. Rapid passages in the management of the filter may be recognised at once by the presence of bacteria found therein which are capable of development. When the filtration is well conducted not more than one hundred germs to the cubic centimetre of filtered water should be found. These germs come almost entirely from the lower layers of sand and are quite harmless. Only a small portion of them come from the top water. Absolute impenetrability to all the bacteria found in impure water can only be obtained by enormous increase in the cost. That the existing system is entirely adequate when understandingly administered, the experience of Altona last fall has proved conclusively. On the other hand, the Nietleben epidemic and the Altona winter epidemic demonstrate how fatal imperfections in the plant may become.

The Lunatic Asylum in Nietleben is provided with a

filtering station very similar to all the newly constructed sand filters. Beyond one or two faults in the plant (there was no separate outlet for badly filtered water), the fact that, on account of a subsequent increase in the size of the institution, the demand for water exceeded the capacity of the plant proved fatal. The time necessary for the formation of slime deposit was not given. The rapidity of filtration far exceeded a safe limit (one hundred millimetres per hour). The result was that water was received into the asylum in an almost unfiltered condition. After the outbreak of the epidemic (a bacteriological comparison had never before been made) three hundred and two thousand four hundred germs were found in one cubic centimetre of unfiltered Saale water, and fifty-two thousand four hundred and ten in one cubic centimetre of *filtered* water!

How could the winter (January and February, 1893) epidemic in Altona occur after the waterworks had afforded such brilliant protection in the autumn? In former years several typhoid epidemics were without doubt traced to the water supply. Attention was then attracted to the impairment of filtration by frost. During the cholera epidemic of 1893 it was definitely proved that the freezing of the upper sand layers during filtration rendered the latter inadequate. This demonstration became possible only after alterations were made whereby the bacteriologist could examine the product of each individual filter bed of the plant. Formerly only the water from the collecting basin had been examined. A table of the February experiments demonstrated incontrovertibly the importance of this separate examination. The freezing of the water above the filter, also, which renders the cleaning of the thickly beslimed sand (over-worked filter) difficult, also seriously interferes with its working. The same thing occurs in summer, when the water is extraordinarily rich in microscopic vegetation. The layer of slime quickly becomes too thick, and the increased demand for water does not permit the clean filter to rest a sufficient time. Thus it might have happened that during the small residual epidemic in Hamburg (December 20th to 27th—twenty-seven cases) infectious material reached the river Elbe (cholera bacilli were demonstrated in the Elbe water) and the germs were thus scattered over Altona. The epidemic was very limited, because of the eight filter beds only two were impaired in their function. From these experiences the following conditions might be required for sand filtration:—

1. The rapidity of filtration should not exceed one hundred millimetres (nearly four inches) per hour. For

this purpose each filter must be fitted with an appliance whereby the inflow can be regulated and kept at a certain rate.

2. Each filter bed must be examined bacteriologically every day during which it is in activity. The water for this purpose must be taken directly at the outlet of the filter.

3. Filtered water which contains more than one hundred germs capable of developing is not to be let into the reservoir of clean water. The filter must be so constructed that imperfectly filtered water may be drawn off without mixing with the pure, filtered water.

Another pressing necessity is that the State should insist upon an intelligent and careful administration and control of the waterworks.

From these observations it may be concluded that we must not place too implicit confidence in filtration, and must eventually seek other means of purifying the water supply of large cities. As such, we may consider the use of underground water, which offers absolute protection against infection, especially as we are now in position to neutralise excessive iron contained in it by aeration and filtration. Such establishments have already been erected in Leipzig, Cologne, Dresden, Halle, Charlottenberg, Budapest, &c., and are there in successful operation. In many places the underground water is so hard, or rich in chlorides, that it cannot be used. In Berlin, the works in Stralau, the oldest on the Continent, have had to contend with the greatest difficulties, especially in winter. On the 1st of July the new works, which are protected from frost by covered filters, are to be used. The Stralau works can then, after extensive preparations, be used for storing underground water. By using a number of wells, the underground stream will be so controlled that the proper amount of water may be obtained. The filters now in use can be used to free the water from iron. Greater rapidity is allowed for this purpose than for freeing the water from micro-organisms. Thus an absolutely safe underground-water plant may be substituted with comparatively small changes.

In conclusion, filtration on a small scale remains to be considered, by natural and artificial means in its relation to protection against cholera. The small, artificial house filters of all kinds are to be condemned as absolutely dangerous. Natural filtration is much better. There is no better filtered or infection-proof water than underground water. That it may remain pure, it is only necessary to see that no subsequent infection takes place. The safest way of obtaining it is through iron-pipe wells. The

wells with ordinary reservoirs are very irrational, as they constantly expose the water to contamination from above. In a case which will be published hereafter, such wells were the starting-point of an epidemic. Hence ordinary dug wells should be abandoned if exposed to contamination. They may easily be changed to some kind of pipe wells, or they may be protected against contamination from without by a layer of sand, at least two metres thick, above the high-water level. The danger of contamination will be greatly lessened if the pump is placed at a considerable distance from the well, and connected with it by a lead pipe. The spread of cholera by water may be greatly diminished by the increased care of water supplies which are on a small scale.

ON SOME INSANITARY SUPERSTITIONS IN HOUSE-BUILDING.

By H. H. STATHAM, F.R.I.B.A.

THE remarks in this paper refer more especially to houses built in large and crowded cities. Houses built in open situations in the country are permeated by an atmosphere comparatively pure and clean. Houses in large towns are permeated by an atmosphere laden with impurities, which are continually being deposited on every surface that will retain or absorb them. They are also subject, unless carefully watched, to the incursion of various types of vermin. It is therefore desirable that houses should be constructed of materials the least likely to absorb and retain impurities, and that the method of construction should be such as to leave no unlighted and inaccessible spaces.

The habitual construction of ordinary houses in England is not in accordance with these requirements. For many generations the orthodox manner of making a house-floor has been to lay wooden joists from wall to wall with boards nailed down above, and a lath and plaster ceiling beneath, the space between being an unseen cavern for the accumulation of whatever dirt and decaying matter can find its way in. What the results may be I once saw in the worst form in a case where the boards of an East End schoolroom were taken up to ascertain the condition of the joists. The space between those joists was filled nearly to the top with dirt and dust, over which the children had been daily collected. Such a floor would not be allowed in a modern London Board school, but it is the accepted floor for a dwelling-house; and though the conditions of a well-kept dwelling-house do not encourage such

an accumulation as this, I believe the tenants of the best-kept London house which has been inhabited for any length of time would be disagreeably surprised at the amount of dirt they would find under their flooring-boards, if they looked for it. The old-fashioned system of ceiling up to the under side of the flooring-boards and leaving the joints visible is far more sanitary; the drawback is that it is unsightly and that it does not shut out sound sufficiently. Double flooring-boards with felt between would get over the latter objection to some extent; but what I wish to recommend is the general adoption of solid floors of iron and concrete, with a wood block or plain parquet floor on them, for the average town dwelling-house. They are almost necessarily adopted for houses in flats; why not for every dwelling-house?

It has for many generations been the recognised faith that a house roof can only be made by means of rafters laid on the slope, with a tie at the foot, and with ceiling joists either at the springing of the roof or part way up the slope. The advantage of this is that the upper rooms, which go partly into the roof, are rendered inconvenient and unsightly by a low, sloping ceiling to half the room, and that above the ceiling joists is a dark cavern between them and the roof, into which no one ever sees, and where dirt may accumulate and vermin may breed undisturbed. It is really an almost alarming thought to reflect what is the probable cubic content of these dark caverns in the roofs of houses all over London. If it be thought necessary to go on building sloping roofs, either the whole slope of the roof should be thrown into the top rooms, as the visible ceiling, or the ceiling of the highest living-rooms should be at the level of the roof-spring, and the space between that and the rafters should be treated as storage space, easily accessible and sufficiently lighted to be readily examined from time to time. But, in fact, it is entirely unnecessary, in these days of iron, and concrete, and tile, that we should build sloping roofs at all; the doing so is a mere superstition, except where reasons of architectural effect are concerned, and certainly architectural effect does not concern itself much in the ordinary house roof. With flat roofs, with cement finish and sufficient fall to run the rain to the gutters, we should get rid at once of all these dark caverns, the exterior and interior of the roof would coincide in shape, and convenience and healthfulness would be alike consulted.

The whole tribe of things called "skirtings" and "casings" are superstitions of the same kind for providing dark, inaccessible places, where no cleansing hand

can ever come. Baths and water-closet basins are surrounded with those foolish fences of joinery; whited sepulchres, which, indeed, appear neat outwardly, but within they are full of no one knows what, for no one ever looks. Let both water-closet and bath-stand be open to inspection all round, instead of being cased in. In the matter of the bath, the money spent on panelled casing and "polished baywood or mahogany top" would go far to render the bath itself a neat and presentable piece of furniture.

Casings for pipes are, no doubt, necessary, and are generally specified to be screwed on, so as to be removable when required. They never are removed, or the space behind seen, except when something is wrong with a pipe. They should be hinged, and made with button fasteners, so that they can be opened every day without any trouble. Among other drawbacks, they form a private lift or elevator for the cockroach, who is fond of warmth, and is enticed to ascend along the line of the hot-water pipes. The cockroach is bad enough in the kitchen, but a good deal worse in the bedroom; it is hardly worth while to afford him the luxury of a private passage, heated with hot water, to the upper floors.

The passion for sash windows in this country leads to the employment of another system of wooden cradling built up round the windows, with hollow inaccessible boxes for the lines and weights, besides (generally speaking) another set of hollow spaces behind the back of the shutter casings. It is perfectly possible to make sash windows without pulleys and weights in more ways than one, unless they are very large and heavy. But the casement window has the advantage that it can be hung in solid frames without any of this bandbox work round it, and making it weather-tight is merely a matter of care and scientific construction. It is worth consideration whether we should not do better to return to it as the more wholesome and sensible structure of the two.

Wall paper is a simple and inexpensive means of producing decorative effect in a room, but papers should be close in texture and smooth in surface. Papers with embossed surfaces, and, above all, what are called "flock" papers, are dust-holders, and such wall surfaces cannot be kept properly clean. Coloured plaster, finished with a hard surface, is more sanitary than any paper, considering that the paper has a layer of paste behind it which becomes rotten in time. If, however, papers are renewed often enough, and the plaster stripped and well scoured at each renewal, the insanitary element in them is not of sufficient importance to counterbalance the decorative gain.

Large and deep plaster mouldings and decorations are now, fortunately, going out of fashion on æsthetic grounds; they are injurious to the cleanly condition of a house, affording so many pockets for the lodgment of dirt. As long as they are kept flat and in low relief, there is no harm in them. The wooden mouldings with a hollow on the top, which are now much used to take picture-hooks, are objectionable, as the hollow is always full of dust. The old brass picture-rods are much to be preferred in this respect.

Furniture, which is a kind of minor architecture, has its superstitions of construction, the worst of which is the system of finishing large wardrobes, book-cases, &c., with a cornice standing up all round the top, leaving a wide pit for dust, which is never seen, and cannot be swept. This cornice is a mere fashion, utterly useless and absurd. The top should be made level or (still better) sloping, and with no raised ledge above it, so that it can be swept. It is best of all to make large erections of this kind as fixtures, carried up to the ceiling, and finished with a moulding against the ceiling; then there is no place where dust can accumulate.

The last superstition I will mention concerns that important receptacle, the cistern. The cistern should be in a well-lighted place, where it can be easily seen every day. The best way would be to make it as an aquarium tank is made, with a front of plate glass, so that you can see the light through the water.



THE GROWTH OF LONDON.

WHILE some of the central districts of London are actually losing population—for instance, St. James's, Westminster, dropped from 29,941 inhabitants at the census of 1881, to 24,993 in 1891—the increase of the Metropolis is enormous. Like some huge octopus, London reaches out in every direction, and suburban localities which were only sparsely populated some years back, perhaps even scarcely known, can now show their thousands and tens of thousands of residents. No matter what direction we may turn, a corresponding activity of growth is displayed, and several of the home counties are thus undergoing gradual absorption.

In our student days at St. Bartholomew's, we used to go in summer on botanical excursions to the fields lying beyond Highbury, to the north of London, and a visit to Hornsey Wood—now part of the site of Finsbury Park—was regarded as a complete country outing. On other occasions, when we journeyed to Lord's or to the

Oval Cricket Ground, we felt that we were perceptibly reaching the outskirts of the great city; but now, the difficulty is to define where London ends and the country begins. Even when we seem to have left the Metropolis behind us, we do so more in semblance than in reality; for if the locality is rural in aspect, it is only necessary to spend a short time between the hours of 7 and 10 a.m. at any railway station within fifteen miles of St. Paul's, to convince ourselves that a large proportion of those who have passed the night at houses in the vicinity spend their working hours in London; that they constitute a species of hybrid—half-Londoner, half-country resident.

The detailed census returns, which have recently been published, show that London proper has increased in population by 396,000 between 1881 and 1891, and it is estimated that the immediately outlying townships have grown to a similar extent; making a total number of more than three-quarters of a million of human beings in a single decade. It is difficult to grasp the significance, in a social and sanitary sense, of such a vast increase in population, an increase which has been correspondingly observed in nearly all our large cities and towns; a fact which furnishes abundant subject-matter for present contemplation and future conjecture.

Rather more than five hundred years ago—viz., in 1377—an enumeration of the then existing population of England was made, with reference to the poll-tax. The whole number was less than two millions, and there were only eighteen towns with more than three thousand inhabitants.

POISONOUS DYES AND PIGMENTS.

By THOMAS T. P. BRUCE WARREN.

ABOUT 1856 a Commission was appointed by the *Lancet* to examine and report on the various forms of adulteration which were then practised, and, I think, making allowance for every doubtful result, this Commission, on the whole, did a very important and serviceable duty.

The Commission consisted of Drs. Letheby, Normandy, and Hassall, names which, at any rate, were a guarantee for earnest and valuable work. Although we were slow in introducing our Food and Drugs Adulteration Acts, I have often thought that the public is primarily indebted to the disclosures made by this Commission for the statutory veto pronounced on adulterations by these Acts.

It is now nearly forty years ago since this Commission

did its work, but I well remember the following extraordinary statement being reported on the authority of the Commissioners. One of them purchased from a London confectioner a sweetmeat in the form of a cock; the colouring of the comb contained no less than seven well-known mineral poisons—arsenic, lead, copper, and mercury being present, *horribile dictu!*

Red wines are more frequently coloured with aniline dyes than many people suspect; ice-creams, jellies, and sweets may be bracketed with wines. This brings us to the consideration of the well-known magenta dye which forms the basis of an interesting series of colours, including red and its various shades. By oxidising aniline with arsenic acid, magenta is produced, and different shades are produced from this arsenical magenta.

Aniline, oxidised by other agents than arsenic acid, has furnished more inert dyes, but still arsenic acid is said to yield the most satisfactory result as regards, colour. Non-arsenical dyes have been devised principally to guard against the use of poisonous colouring matters when used for articles of food, &c.

Arsenical dyes should never be used for colouring an article worn next the skin. The following incident is worth relating. Shortly after the battle of Solferino a new red dye was introduced, which became very fashionable, under the name of "Solferino red." A friend of mine bought some short hose coloured with this favourite dye. In a few days my friend's legs became almost as red as his socks, which we attributed to the dye "coming off." No particular irritation was noticed or complained of, but after a time a very visible eruption set in, which proved troublesome and painful. The red socks were abandoned, with a marked improvement after a few days. I have no doubt that many similar cases must have happened.

Many people have an idea that arsenical pigments betray themselves by a green colour, but it is evident we must not be too ready to take comfort in the innocence of a dye because of its colour.

Green tarlatans were very fashionable a few years ago or ball dresses, &c. The preparations used were Scheele's green (arsenite of copper) and Schweinfurth green (aceto-arsenite of copper). In connexion with the subject of ball dresses, it may be mentioned that sometimes a large quantity of glass-powder is used on the materials used for making them up; much of this gets shaken off, and the atmosphere of the room is soon charged with a dangerous irritant, which finds its way to the lungs, and may lay the foundation of a serious laryngeal inflammation, in time extending to the lungs.

Arsenical wall-papers are not used to anything like the extent that they were a few years ago. The papers used were what are known as "flock" papers; the pigments, being easily detached, floated about as dust in the room decorated with them, with a result which the occupant sooner or later experienced.

Tartar emetic (Antim. Pot. Tart.) has been proposed as a mordant for certain colours on cotton and other fabrics. It is impossible to regard this as a harmless innovation if the dyed tissues are likely to be placed next the skin. Whether other antimonial compounds are open to the same objection can only be determined by experiment.

NEWS AND NOTES.

Curious Use for Corsets.—Having recently published an article condemning the inordinate wearing of stays, it is only fair that we should record the following instance of a corset saving a woman's life. In a street quarrel between two men at Bordeaux, one of the combatants suddenly drew a pistol and discharged it at his opponent. As usual in affairs of this kind, the bullet missed the man for whom it was intended and struck a lady who happened to be passing by; fortunately it came in contact with a portion of steel and glanced off without injuring the lady. But, for one woman's life saved by wearing corsets, how many have been shortened by the same practice?

Diphtheria continues to increase in London, the number of deaths from this cause being much in excess of the average.

Enforcing the Factory Act.—A cycle manufacturer at Kennington has been fined £3 and costs for two offences under the Act; namely, failing to obtain certificates of fitness in regard to two boys in his employ, and failing to properly fence the fly-wheels of two gas engines used at his works. The defendant pleaded ignorance of his duty in these two respects. He may consider it a desirable economy in future to make himself better acquainted with the Act.

The Boarding Out of Pauper Children.—Mr. Peterkin, the general superintendent, has reported very favourably on the Scotch system of placing pauper children to board in private dwellings. It has undoubtedly much value in improving the social and hygienic condition of the children; and it is a system deserving of more extended trial in England.

Romford.—In consequence of the excessive prevalence of scarlet fever and other infectious diseases, it has been decided to close the Board and Sunday schools.

The *Keynsham Rural Sanitary Authority* have applied to the Local Government Board for sanction to raise £19,000 to be applied to sewage disposal arrangements at Mangotsfield.

The Paris Water Supply, notoriously defective in dry seasons, owing to the large quantity of water drawn from the Seine, will probably be improved before long by tapping six springs situated near Nemours, and now discharging into a small river, the Loing. The cost is estimated at £1,000,000.

CORRESPONDENCE.

SANITARY INSPECTORS AND THEIR SALARIES.

To the Editor of HYGIENE.

SIR,—I should like to draw attention to an advertisement of the Newton Abbot Rural Sanitary Authority, which has appeared lately in a weekly newspaper. A sanitary inspector is required, to whom the sanitary authority are prepared to pay the munificent sum of 50*l.* per annum—not quite 20*s.* a week. Moreover, it is stipulated in the announcement that the fortunate (?) candidate selected will be expected to defray all his travelling expenses out of this pittance; no inconsiderable outlay, your readers will doubtless think, when it is mentioned that the union constituting the Rural Sanitary Authority contains a population of more than 25,000 people, scattered over an area of 110,304 acres, or 172 square miles! Now, to properly fulfil the duties of such an office, a man must have a good general education, considerable knowledge of building, plumbing, and kindred trades, and to carry out the duties imposed on him by the various sanitary Acts, the Local Government Board, and his own local authority with any degree of success, he must be possessed of great tact and sound judgment. Then, to obtain the certificate of the Sanitary Institute, which every inspector should hold, he must submit himself for an examination, to pass which he must have somewhat of the knowledge of a doctor, a lawyer, a veterinary surgeon, and a civil engineer, besides its costing many pounds for books, lectures, fees, &c. This certificate is the recognised qualification of the Local Government Board for sanitary inspectors, and to obtain a man with this combination of qualities, the Newton Abbot Sanitary Authority offer the above munificent salary, not nearly the wages of a good mechanic, barely equal to those of a labourer. Is it not time that the Local Government Board woke up the sanitary authorities to a sense of their duty in this respect? Is such a salary sufficient to keep a man honest, in a responsible position where, it may be, he is often tempted to accept bribes to close his eyes to things that may be going on around him? If we must have these officers, let us at least pay sufficient salary to ensure them being above suspicion, as well as to remunerate them for their services. We shall find it will be cheaper in the long run than heavy doctors' bills, and a high rate to support the fever hospitals; two penalties of insanitary houses, which are sure to be found in

districts where the local authority is under the impression it can get a man thoroughly competent in sanitary knowledge for less than 1*l*. per week.—Yours, &c.,

ASSOC. SAN. INST.

[We have frequently insisted upon the necessity and justice of paying adequate salaries to able inspectors. Some excellent observations on this subject will be found in a paper by Dr. Reid, M.O.H for Staffordshire, on the education, training, and status of sanitary inspectors, which will be published in our next number, October 23rd.—ED. HYGIENE.]

ANSWERS TO CORRESPONDENTS.

Inspector (Birmingham).—The law on the point is clear and reasonable. If the condemnation by the magistrate of meat or other articles exposed for sale were delayed till two or three days after the seizure by the inspector, it would be unfair to the tradesman. What changes might not take place in forty-eight or seventy-two hours of such tropical weather as we have had during the past summer, for instance.

A Victim.—The patent medicine you mention is undergoing analysis now, and will shortly be dealt with in HYGIENE.

G. W. S.—You should memorialise the Local Government Board if your district sanitary authority should fail to take steps for remedying the nuisance.

M. E. (Devonshire).—You will find all the information you require in an article on the sanitary significance of chlorides and nitrates in water, by Mr. Gatehouse, F.I.C., public analyst for Wiltshire, &c. (HYGIENE, July 21st, 1893.)

A Stammerer (Dublin).—See *Impediments of Speech*, published by Beaumont & Co., Savoy House, Strand, London.

M. O. H.—We cannot advise you without seeing the report.

S. J. (Kent).—It is probable that there is no fault in the materials used in the construction of your house which has shown signs of collapse. We have heard of numerous similar cases of outer walls of houses (even of churches) giving way and cracking in Kent, Surrey, Lincolnshire, &c., at places where there is a clay subsoil. The reason is obvious, viz., the drying of the subsoil during the excessively hot summer, and consequent shrinkage of the clay, which is then unequal to bearing the weight of the building erected on it. More care as regards the foundations, such as putting in cement "footings," would most likely have prevented the accident.

Assoc. San. Inst.—District Boards very often err in paying absurdly low salaries to their officials. Your letter appears in our current number.

T. W.—We think that the book you refer to is *The Dietetic Value of Bread*, by Professor Goodfellow. It is published by Messrs. Macmillan & Co.

Lincoln will receive a private reply, by letter.

Mater (Leamington).—The reason why the recently weaned infant does not take so readily as might be wished to the cow's milk substituted for its natural diet is that cow's milk does not contain so much lactose (milk-sugar) as human milk does; the proportion in the latter being 7 per cent., while it is only 4½ in the former. You should therefore sweeten the cow's milk by adding a suitable amount of cane-sugar before feeding the infant with it.

A Well-wisher (Edinburgh) thinks that every medical man should subscribe to HYGIENE, in recognition of the services we have rendered in exposing quackery. We are modest, but we are also human, so that we must admit that we agree with him.

Notification of Infectious Diseases.—Our correspondent, *W. D.* (Manchester), is in error. The Infectious Diseases Notification Act, 1889, includes under the definition "infectious diseases to which this Act applies," any of the following diseases:—Small-pox, cholera, diphtheria, membranous croup, erysipelas; and various fevers, scarlet fever, typhus, typhoid, relapsing, continued, and puerperal. But this Act does not prohibit the inclusion of any others; on the contrary, it expressly provides that local authorities may, with the approval of the Local Government Board, include other infectious diseases than those specified.

Mons. Viardot (Paris).—We are much obliged for the pamphlet.

F. N.—The quotation, "To quack of universal cures," will be found in *Hudibras*, Part III., Canto 1.

EDITORIAL AND PUBLISHING NOTICES.

CORRECTION.—In some of the copies of HYGIENE for September 22nd, at page 267, first column, line 14 from bottom, owing to the slipping out of a figure, "1" appears instead of "19." The sentence should read as follows:—"19 were attacked."

EDITORIAL.—The Editor begs to express his thanks to numerous correspondents, and to state that he will be pleased to receive any articles or correspondence coming within the scope of HYGIENE, books or pamphlets for review, reports of medical officers of health, items of general or local sanitary interest, newspapers (marked at the part to which it is desired to draw attention), &c.

ADVERTISERS are requested to bear in mind the greatly increased circulation of HYGIENE, with its weekly issue and reduced price. In addition to the large regular circulation, many thousands of copies are distributed annually to sanitary officials, medical men, private addresses, public libraries, clubs, hotels, &c.

HYGIENE,

A SANITARY PAPER.

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SANITARY INSPECTORS: THEIR EDUCATION, TRAINING, AND STATUS.

By GEORGE REID, M.D., D.P.H., *Medical Officer,*
Staffordshire County Council.

THE local sanitary administration of this country is conducted by district authorities or boards, who are appointed by the ratepayers. In extent, the districts, both as regards area and population, vary considerably, and they are classed as urban and rural, the distinction being dependent broadly on the density of the population.

County Councils have been instituted, to whom certain limited sanitary powers have been entrusted, over large areas embracing a number of authorities, and the whole organization is under a controlling central authority, the Local Government Board.

The district authorities appoint medical officers of health, who are their responsible advisers on matters relating to the health of the people. In addition to these, inspectors of nuisances, or, as by preference they might be called, sanitary inspectors, are appointed, and it is with regard to the education, training, and status of these latter officers that this paper is concerned.

For the information of those who may not be familiar with the duties of a sanitary inspector, I would compare them with those of a police officer, substituting disease in one case for crime in the other. A little reflection on these lines will convey an idea of the varied, the responsible, and in many cases the dangerous nature of the calling, and it will at once become apparent that special knowledge, training, and experience are indis-

pensable requirements in such an officer. To efficiently discharge his duties it is essential that, intellectually, he should at least be entitled to take an average place, and that, technically, he should possess, at any rate, an elementary knowledge of the various conditions upon which the hygienic well-being of the community is dependent, including the physical laws that govern all sanitary operations.

An inspector, then, ought to know enough of physics in relation to air and water to enable him to understand the principles upon which proper ventilation, warming, water supply, and drainage are dependent. He ought to be familiar with physiology to an extent that will make intelligible the influence that impure air, impure water, and general insanitary surroundings exercise on the usual healthy functions of the body. The conditions upon which the origin and spread of infectious disease are dependent, and the best means of counteracting these, ought to form a part of his stock of knowledge. As a guardian of the food supply, it is necessary that he should be able to recognise unsound meat, a duty which requires a knowledge of the diseases to which animals are liable, and the signs of these in the carcase, as well as of the evidence of putrefactive changes in food, both animal and vegetable. The operations of certain trade processes that are likely to give rise to nuisances must be known to him, so that he may advise his Authority of cases in which the law that governs these is being abused. And lastly, he must know the provisions—so far as they relate to his duties—of the Public Health and other Acts that govern the sanitary administrations of the country. In short, if the detailed duties of a

sanitary inspector mean anything at all, they entail the possession by him of an amount of technical knowledge that, as I have already remarked, can only be acquired by special study and training. To this technical knowledge must be added a good general education that will enable him to properly keep the necessary books and records; and by no means the least important of his requirements are tact and common sense.

It is such a man, and only such a man, who can be of real service at the right hand of the medical officer of health whose instructions it is his duty to carry out.

I would here remark that in England, as regards the relationship of the two officers, this is the inspector's recognised position, and, from the nature of his duties, it is difficult to conceive how it could well be otherwise, although in Scotland it would appear to be so. There the two offices have hitherto, theoretically at any rate, been looked upon as distinct and independent, and, not long ago, the relative position of the officers has been the subject of considerable discussion in that country, a body of sanitary inspectors having petitioned against the adoption by a county authority of certain by-laws, with the result that the by-laws in question, which sought to establish the same relationship between the medical officer and inspector as is recognised in England, were modified to an extent which, unfortunately, leaves matters much in the same position as before.

One of the arguments used by the petitioning inspectors was, that by reason of the two offices being independent, in the event of the action of the inspector being questioned the medical officer would with greater force he appealed to in his support. This, to my mind, is one of the strongest arguments against the proposition, for, supposing the medical officer's views should differ from those of the inspector, the Authority, in the conflict of opinion, would have to act for themselves. What, too, would be the effect of such independence in large districts under one medical officer, but under several inspectors, each differing from the other possibly, in the advice given to the sanitary Authority with regard to similar conditions?

In order to ascertain the present position as regards the details of administration for inspection in the various sanitary districts of England, I sent out circulars to each inspector in Staffordshire—including those of county boroughs—containing questions with reference to the previous position and training, salaries, duties, and conditions of appointment in each case. I selected Staffordshire, partly because of my official connexion

with the county and partly because of the fact that its population is both agricultural and manufacturing. In addition to this, I obtained the same information from a town of upwards of 400,000 inhabitants, which may be taken as an example of most large towns. This information has been condensed into tabular form for convenient reference, but the details are too numerous to admit of more than a cursory analysis in the space at my disposal.

In the first place, with regard to urban districts. In the case of the large town selected as an example, there is a head qualified inspector who receives a salary of £250 a year, and included in his duties is inspection under the Sale of Food and Drugs Act. He has twenty-three assistant inspectors under him, whose duties are distributed as follows:—Health department, 16; smoke department, 4; dairies, cowsheds, and milkshops, 1; canal boats, 1; and lodging-houses, 1. They are not qualified, and they receive from about £70 to £90 a year.

In the four towns with populations exceeding 50,000, in one case the sanitary inspection is in the hands of one man, in two cases there are two inspectors, and in the other the duties, including inspection under the Sale of Food and Drugs Act, are divided among three. The salaries in these cases range from £104 to £140.

In the next group, consisting of five towns with populations of under 50,000 and over 30,000, the conditions, except with regard to assistance, are very much the same.

In the following group, comprised of five towns with populations of between 20,000 and 30,000, while the salaries are about the same, the duties are increased by extraneous work.

Excluding the large towns, then, it may be said that the salaries in towns of under 50,000 and over 20,000 amount to about £2 a week—the wages of a skilled artisan.

Further down in the table, among the smaller towns, the salaries paid are extremely erratic in amount, and extra duties of a varying nature are imposed. Take, for example, a town with a population approaching 20,000, where the inspector receives £35 a year, as compared with another town, having under 6000 inhabitants, where the inspector's salary is £80 a year. The contrast is still more marked owing to the fact that in the former case the salary is made up to £95 by the additional appointment of rate collector, while in the latter it is supplemented to £365 in payment for extra work as surveyor, engineer of the waterworks, and inspector of a

rural district; and as, in this case, the officer has to provide himself with assistants, doubtless the salary paid is not more than the work deserves.

The last example I would call attention to is a district where the inspector is also rate collector, at a joint salary of £35 a year.

In less than one half of the districts only is the tenure of office permanent.

In only nine out of the thirty-nine examples did the inspector possess any knowledge of his duties previous to his appointment, and in only three instances are any definite conditions as to previous knowledge imposed on candidates, although it is but fair to note that in many cases no recent vacancy has occurred, the present officers having held their appointments for many years. In the case of those districts in which appointments have been made within the past five years, out of seventeen such (excluding one for which there is no return) only in six did the inspector possess any previous knowledge of his duties.

With regard to the previous occupations of inspectors, they are too varied to enumerate. Policemen, rate collectors, clerks, and farmers form the bulk of them.

In addition to other information obtained, my inquiry included the following question:—"Are you of opinion that you can efficiently discharge your duties as inspector, or, do you consider that your district is too extensive, or, that other duties (if you have any) occupy too much of your time?" For obvious reasons I have not included in the table the answers given to this question, but I may state that out of seventeen replies from towns with over 15,000 inhabitants, twelve inspectors admitted their inability to perform their duties, the reason given, in four instances, being, that the supervision of refuse removal (work which might well be entrusted to an assistant) occupied too much of their time.

That so many negative replies to this question should have been received is not surprising when we find that the range of population entrusted to one man—without the imposition of other duties—varies from above 50,000 to about a quarter of that number, showing, either, that in the one case the work is excessive, or, in the other, too small. So much for urban districts.

With regard to rural districts I have taken area in place of population as a basis for classification. There the salaries paid vary greatly without regard to the size of the districts; also, in a large proportion of cases, other duties, such as those of inspectors of urban districts, rate collectors, school attendance officers,

vaccination officers, &c., are combined. In four instances only is this not the case, and, oddly enough, two of these are the smallest districts.

In many cases, too, the emoluments from extraneous work form the greater portion of the joint salaries. In the case of three districts, not only is other work allowed, but no limit seems to be placed upon it, the additional occupation in one case being "various," in another that of an architect, and in the third that of a house and estate agent.

In no cases are travelling expenses provided.

In every case the county council grant is taken advantage of.

In one case only which embraces the appointment of surveyor and inspector of an urban district, is any specified previous knowledge required; and again, as in urban districts, the men selected have usually been policemen, farmers, clerks, &c.

In replying to the question whether the duties can be efficiently performed, no fewer than ten of the eighteen rural inspectors answer in the negative; some calling attention to the fact that other duties occupy too much of their time, although, at the same time, they say that if these were taken away little would be left of the inspector's portion of the salary after paying expenses. To put the matter plainly, the views of the local authorities may be expressed as follows:—"There are certain appointments that must be made, involving duties that must be done. Here is an appointment, the duties of which are less defined; let us tack it on to the others to make up one man's salary, and if he has any spare time after doing his regular work, he can devote it to sanitary inspection."

So far as I have been able to ascertain, the sanitary administration for inspection in other countries does not admit of comparison with that in England. In Germany, for example, lay inspectors do not exist—except for the purpose of factory inspection, the general sanitary administration being in the hands of specially qualified medical officers, who are appointed for life by central governing bodies. In addition to the supervision of everything connected with the care of public health, they have other duties to perform, such as public vaccination, medico-legal inquiries, and official visits to schools, prisons, private lunatic asylums, and hospitals.

The details of organization in one state differ from those in another. The kingdom of Saxony, for example, is divided into thirty-four "medical districts," varying in extent from 740 to 222,300 acres, and from 9000 to 350,000 inhabitants. My informant states that, unfortunately, sanitary inspectors do not exist.

The Archduchy of Hesse, with an area of over 1,800,000 acres (about the size of the West Riding of Yorkshire), and a population of about 1,000,000 is divided into eighteen sanitary districts, the populations of which vary from 30,000 to about 120,000—the most populous districts being those in which large towns are situated. Each medical officer has, on an average, a population of 55,000 under his charge, and the eighteen medical officers have ten assistants who are not attached to any particular districts. The salaries of the medical officers vary from £120 to £240, and of the assistants from £30 to £50. My informant states that the sanitary administration appears to be satisfactory, although some of the authorities show a want of interest in sanitary questions—a characteristic of which we have a few examples in this country.

The Archduchy of Baden is divided into districts of from 10,000 to 105,000 inhabitants, each district having a medical officer, and, in the case of the large districts, an assistant medical officer. The medical officer receives from £200 to £300 a year. Here the working of the system is said to be “useful, salutary, and satisfactory.”

The kingdom of Wurtemberg is divided into sixty-four districts, with an average population of 31,000. Each district has a Medical Officer of Health, and in addition there are seven “Medical Associates” of the Medical Board, a body part of whose duty it is to visit the various districts periodically. Eight such visits are made every year, so that each district is visited once every eight years. The organization in this case is said to have been satisfactory since the custom of visits by the Medical Board was established.

The sanitary administration of the kingdom of Bavaria, apart from the fact that there are no lay inspectors, would seem to resemble that of this country in that it is divided into eight “Government Districts” corresponding to our counties, each having a “Medical Councillor,” and into 152 “Local Districts,” with an average population of 30,000, under the supervision of a District Medical Officer. In addition to these officials there is a “Chief Medical Councillor.” The salaries of the District Medical Officers vary from £90 to £140 a year, those of the Government Medical Councillors from £245 to £288, and that of the Chief Medical Councillor from £300 to £350—the amounts varying in accordance with length of service. Here the organization is said to have proved satisfactory on the whole.

In addition to their salaries, Medical Officers of Health throughout Germany receive fees for public vaccination, and although they are not allowed to hold other public

appointments they may undertake private practice, but, it is said, their official duties occupy most of their time.

In France sanitary organization is at present being considered, and a Bill has been submitted to the Chamber of Deputies by a “Consultative Committee on Hygiene,” which is said to provide for a complete sanitary service, founded partly on information furnished by foreign sanitary institutions. At present there are from ten to fifteen districts, and the sanitary officials, each of whom has one assistant, are the Professors of Hygiene in the Schools of Medicine at Paris, Lille, Nancy, Lyons, Bordeaux, and Montpellier. I am told that these officials have only existed since 1887, and that, so far, they have not rendered much service, their functions not being sufficiently well defined. The salaries of the head officials are £240 a year in addition to that which they derive from other public appointments. Each “arrondissement” also has a recognised medical officer whose duties seem to be “to make investigations and draw up reports on epidemics.”

To return to England, I think the system of lay inspection, in principle, is an admirable one, but I have said enough to indicate that reform in detail is necessary.

In the first place, it ought to be a condition of appointment that all candidates should furnish evidence, in the shape of a recognised diploma, of having acquired a knowledge of their duties. This diploma, in my opinion, ought not to be granted unless the candidate can satisfy the examiners that he possesses a practical, in addition to a theoretical, knowledge of these duties, by previously having been either a pupil or an assistant under a qualified inspector or surveyor. I have seen enough to convince me of the worthless nature of book knowledge only, when an attempt is made to put it into practice. Not only should practical knowledge be required as regards all future candidates, but every inducement should be offered for those inspectors at present in office to qualify for the diploma. I am glad to say that I know of one town where this inducement is offered, in the shape of an increase of £13 a year in the inspector's salary on his obtaining the diploma.

The question will no doubt arise as to who shall be recognised as the qualifying body, but this is a detail which at present need not be considered, although it may well be supposed that the claims of the Sanitary Institute of Great Britain, by reason of the excellent work it has done in this direction during the past thirteen years, ought to receive due recognition.

As regards salaries, if we impose conditions that

necessitate a considerable amount of time, and consequently money being spent in acquiring the knowledge to fit men for the work, and this, too, in the face of the possibility that they may not be successful in the after-competition for an inspector's post, it stands to reason that a reasonable inducement should be offered in return.

For the same reason greater security of tenure of office must be guaranteed. Without this security the inspector is practically at the mercy of a body of men, many of whom are directly interested in property which he may consider it his duty to condemn; to be firm and consistent in the discharge of his duties under these circumstances is more than can be expected of human nature. An inspector ought to retain his appointment so long as he efficiently discharges his duties, and, in order that this security may be guaranteed, his dismissal ought, in all cases, to require the sanction of a controlling and independent body.

In rural districts it is unreasonable to expect the inspector to pay his travelling expenses out of the miserable pittance that is usually paid to him, and yet, without exception, in the districts embraced in my inquiry this is the case. He ought not to be called upon to spend the greater portion, if not the whole, of his salary—which he must do if he does his work—in providing a conveyance to enable him to cover the ground.

The districts, too, under the supervision of one inspector, as regards area in some cases and population in others, are much larger than he can possibly undertake. This fault can be rectified by providing him with assistance, but, in other cases, the districts are too small to support a properly qualified and well-paid official. This also is capable of adjustment, although at present I must not attempt to indicate by what means. I would merely throw out the suggestion that the appointment of Registrars of Births and Deaths in the smaller districts, which at present are almost exclusively held by shopkeepers and others whose occupations are in no way allied to such duties, might more reasonably be held by inspectors under the control of medical officers, and thus serve the purpose of amplifying their incomes from a more appropriate source than is usual at present. Moreover, the inspection of dairies and cowsheds and canal boats, which is so frequently entrusted to police officers and others quite unfitted for the duties, ought, in all cases, to be in the hands of sanitary inspectors.

I would now simply add, by way of emphasising what I have already said, that having recently had many opportunities of judging of the work done by sanitary in-

spectors in various districts, the necessity which I had previously felt to exist for radical reform in that department of sanitary administration has been amply confirmed. The undoubted evidence of good work, in districts in which the inspector proves to be a man who takes an intelligent interest in his work, and exerts himself to acquire a knowledge of his duties—and this, too, in the face of little encouragement from those in authority for whose approval he certainly is entitled to look—testifies to the good that must necessarily follow wise reform. If the inspectors with whom I have come in contact in Staffordshire may be taken as a type of those of other counties, I believe than any effort in the direction of increasing their facilities for becoming more efficient officers will receive at their hands most cordial support.



THE HYGIENIC ADVANTAGES OF ELECTRIC LIGHTING.

By W. PREECE, F.R.S., *Electrician to the Post Office.*

THE great hygienic advantage of the electric light when illuminating our dwellings and our workshops is, not that it purifies the air, but that it prevents the air from being vitiated by the introduction into it of the products of combustion, such as carbonic acid, carbonic oxide, sulphurous acid, &c.; it also prevents the air from being weakened by the abstraction of oxygen, and it prevents it from having its temperature raised by undue radiation and by heated gases being thrown into it.

While legislative measures and the greatest possible stringent regulations have been drawn up to prevent the adulteration of food and the poisoning of water by different impurities, scarcely any attention has been devoted to the prevention of the admission of noxious gases and poisonous vapours into the air of our habitations. Carbonic oxide is a poison of the deadliest character, yet gas jets are freely used which deliver copious discharges of this dangerous gas into the atmosphere of our rooms. If we were consistent in our legislation, we ought to forbid the employment of any burner which thus poisons the air. A gas jet burning five cubic feet of coal gas per hour exhales four cubic feet of carbonic acid. The maximum proportion of carbonic acid to air, consistent with health, is 6 volumes in 10,000; 10 volumes per 10,000 of air affect the heart, and 30 volumes produce headache. Rheumatism, bronchitis, and other ailments proceed from higher proportions. In fact, five cubic feet of coal gas require 8000 cubic feet of pure air per hour to fully maintain a

healthful state. The electric light necessitates no such provision.

That the electric light is a powerful element in the promotion of health is evidenced by the fact that those who use it not only feel all the better for its introduction, but their appetite increases, their sleep improves, and the visits of the doctor are reduced in frequency. Work-people do their work all the better, and absences in consequence of illness occur less often. In the Savings Bank Department, Queen Victoria Street, London, where 1200 were employed, the absences through illness were so greatly reduced that the extra labour gained paid for the electric light. In Liverpool and many other places similar results have been observed.

The influence of artificial light on the eyes has a very important hygienic bearing. Why is it that there is so much short-sightedness in the present day? Is it due to our mode of producing light? Some assert that the injury to the eyes is due to the heat rays and not to the light rays. If that be the case, the electric light must be much less injurious than any other artificial mode of illumination. On the other hand, no one can have experimented with arc lamps without having had his retina painfully affected, which leads one to think that the ultra-violet rays have some influence. No one has, however, ever complained of the influence of a steady glow-lamp upon the eyes, and it is possible to read and to write for many hours by such a light without experiencing the least visual fatigue.

PATENT ALIAS QUACK MEDICINES.*

By the EDITOR.

No. XVII. (New Series.)—Anonymous Abuse; Warner's "Safe Cure" and Medical Staff; A Quack Libel Case; Morison's Pills; Baillie's, Dixon's, Fothergill's, and Lee's Pills; Clarke's Blood Mixture Testimonials.

"Who is this, that deafs our ears with abundance of superfluous breath?"—SHAKESPEARE'S "King John."

SINCE the commencement of this series of articles, we have received so many abusive and threatening com-

munications, apparently from persons connected with the patent medicine trade—in their anger or their modesty (?) they have omitted to give their real names and addresses—that we are getting quite used to letters of this sort. Indeed, we are becoming hardened, and ready to accept them as proofs, notwithstanding their invariably uncomplimentary language, that these articles are too truthful to be palatable to some people, at least. Well, we started on the old-fashioned plan of calling a spade a spade; and when we consider the extravagant boasts which our anonymous assailants make concerning the often purely imaginary properties claimed for their wares, we cannot help thinking it would be better if they would go straighter to the mark, and not perpetually walk round the truth.

There is another curious coincidence about these communications, beside the abuse, energetic enough to make the fortune of a professor of (bad) languages, namely, that they all propound questions which they do not themselves seem able to reply to. Even if, as the writers would seem to imagine, abuse is argument, questioning, without supplying the answer when needful, is a low form of logic. One correspondent inquires: "Why should not Warner & Co. have a large medical staff composed of experienced physicians?" We never said they should not; in fact, a pamphlet dropped into the letter-box at our private house distinctly states that they are fully equipped in this respect. If our correspondent will look again at our article on "Warner's Safe Cure," in *HYGIENE* for September 29th, he will see that we not only refer to this statement, but that we exhibit a natural curiosity as to the names and professional position of the physicians of "long experience and extensive practice" who are always, like Mr.

Law; Mattei's Electro-Homœopathic Remedies. No. II.—(May 20th), Clarke's Blood Mixture. No. III.—(May 27th), Clarke's Blood Mixture; Chlorodyne and other Opiates. No. IV.—(June 9th), Revalenta Arabica. No. V.—(June 16th), The History of Patent Medicines; The Sequah "Prairie Flower" and Oil. No. VI.—(June 23rd), Holloway's Pills and Ointment. No. VII.—(June 30), Correspondence about Holloway and Mattei. No. VIII.—(July 7th), Concerning Advertised Testimonials of Clarke's Blood Mixture. No. IX.—(July 14th), Allen's World's Hair Restorer; Mexican Hair Restorer; Singleton's Golden Ointment for the Eyes; Rowland's Kalydor and Gowland's Lotion for the Skin; Mrs. Anna Ruppert's Skin Tonic; Clarke's Electricities. No. X.—(July 28th), Quack Advertisements and Testimonials; Mother Seigel's Syrup; Clarke's Blood Mixture and the late Dr. Swaine Taylor. No. XI.—(August 11th), Clarke's Blood Mixture; the Alleged Testimonial from the late Dr. Swaine Taylor, F.R.S.; the Obverse and the Reverse. No. XII.—(August 25), Quacks' Testimonials; Mother Seigel's Syrup; Clarke's Blood Mixture. No. XIII.—(September 1st), Beecham's Pills. No. XIV.—(September 15th), Pink Pills for Pale People. No. XV.—(September 29th), Warner's "Safe Cure." No. XVI.—(October 6th), Quack Advertising; Clarke's Blood Mixture and the Bogus Testimonial from Dr. Swaine Taylor, F.R.S.

* The widely spread interest in the original series of articles published under this title in *HYGIENE*, and the great demand for the two volumes of reprints (VOL. I. has run out of stock, and only VOL. II., price 1s., sent post free by our publishers for 14 penny stamps, remains in hand) have induced us, at the request of thousands of our readers, to bring out a new series, containing many fresh reports and analyses, in addition to those which have previously appeared. The following articles have already appeared in this series. It should be mentioned that the new volume of *HYGIENE*, VOL. VII., began on May 13th, 1893, so that subscribers to that volume will have the complete series.

No. I. (May 13th) included:—Patent Medicines; Patent Medicine

Micawber, waiting for somebody or something to turn up at Warner & Co.'s, where "consultations by letter or in person are invited, and medical advice is cheerfully given without charge." This may or may not be the case.

The pamphlet assures us of it, as well as of "strictest confidence;" but, in illustration of the old adage that there is an exception to every rule, the only experience we have had of Warner & Co.'s medical staff and their cheerfully gratuitous advice is derived from a letter which was shown to us by a young man who was induced to write to Warner & Co.'s physicians. The reply he received urged him to fill up a special printed form, comprising no less than forty questions, many of them absolutely unfit for publication. The fee demanded for the first month's treatment was £4 4s.; for the second month, £3 3s. This does not carry out the liberal offer made in the pamphlet, nor does it enlighten us much as to the composition or number of the medical staff.

The letter is signed by an individual who styles himself M.D. Pa., U.S.A., a degree unrecognised in this country. The following is an extract from an official answer to an inquiry on this subject addressed to the Registrar of the General Council of Education and Registration of the United Kingdom: "The qualification of M.D. Pa., U.S.A., does not entitle to registration in the *Medical Register*." The reason is not a difficult one to solve.

What a ridiculously small medical staff it would be were it composed only of one M.D. Pa., U.S.A.; but, of course, Messrs. Warner & Co. must know what they write about, and they mention "physicians." Plural, be it observed; a plural number might constitute a staff, though one would not. If Warner & Co. are really too preoccupied with baking powders (what wonderful "puff" paste they ought to turn out!) to give the names of their physicians just at present, perhaps they will obligingly remedy this omission in the next million of their pamphlet.

We have carefully looked through the present, and find no information on this important point. We came across a testimonial purporting to emanate from a medical practitioner. It is as follows:—"91, Hoxton Street, London, N., August 12th, 1889.—The greatest recommendation that I can give to Warner's 'Safe' remedies is their vast increasing sale, showing their undoubted worth.—M. E. Williams, M.D., &c." We thought it strangely worded, yet, giving such evidence of the writer's acquaintance with the details of Warner &

Co.'s business that we could not help arriving at the conclusion that the writer might have derived his knowledge of the "vastly increasing sale" from holding a position on Warner's medical staff.

We are again placed in a dilemma, for a close examination of the *Medical Register* and of the *Medical Directory* for 1892, containing the names of 30,035 qualified practitioners in the United Kingdom and abroad, failed to discover "M. E. Williams, M.D." amongst that large number, any more than the M.D. Pa. U.S.A., who proffers "gratuitous" professional advice at the rate of four guineas per month! Surely, Warner & Co., in their overweening faith in saltpetre, have not adopted such a curious method of demonstrating their disregard for a profession, which their "Safe" remedies are destined, in their own opinion, to clear off the surface of this planet, as making it a *sine quâ non* that no registered man shall be deemed qualified to act upon their medical staff. If such is the case, they ought, in fairness, to make the fact public. Will M. E. Williams enable us to rectify the omission on the part of the official *Medical Register*? Despite his "greatest recommendation" of Warner's "Safe" remedies, he assuredly thinks there is a corner left yet for medical commercial enterprise; for, in the chemist's window at 91 Hoxton Street, we saw displayed sundry bottles of what Williams modestly styles his "Lung Restorer," and a "Blood Purifier specially prepared by M. E. Williams, chemist, late army surgeon."

On the principle that "one good turn deserves another," or, as the Scotch saying runs, "Ca' me, and I'll ca' thee," Warner & Co. should give M. E. Williams, &c., a testimonial asserting that he is just as great (and no more) in purifying the blood and restoring lungs as they are in safely and certainly curing with saltpetre diseases beyond the limited resources of the whole medical profession.

Some curious evidence came out not long since in a trial at the Cheshire Assizes, being an action brought by Dr. Alfred Ellis Vaughan, a medical practitioner at Crewe, against Samuel Johnson, of Wrinehill, near Crewe, "a quack of the purest water," as the Liverpool and Cheshire papers describe him.

This Johnson thought fit to publish statements of an undoubtedly and grossly defamatory character concerning Dr. Vaughan's treatment of a patient who, in some way, fell into Johnson's hands subsequently. The pamphlet contained most extraordinary puffs in praise of what Johnson called his "Chinese pills;" and Johnson coolly announced that he could cure the worst fever in three

days certain, the worst inflammation in six hours diphtheria in six hours, brain fever or inflammation of the brain in twelve hours, the worst quinsy in two days, and stoppage or twisting of the bowels in six hours certain. There was, in short, no disease that could withstand the Chinese remedies. Marvellous, *if* true (what virtue lies in that little word "if!"). Indeed, there could be only one thing more marvellous, and that is how any man or woman in the county, outside the Chester and Macclesfield Lunatic Asylums, could be induced to believe such assertions. We cannot speak as to the composition of Johnson's Chinese pills; but we can state one fact with satisfaction, namely, that the jury gave a verdict in favour of the plaintiff, £250 damages, with costs. Whether Dr. Vaughan was paid the damages and costs after the trial we cannot say, but we fear there is room for doubts on this point, as well as on the Chinese pills.

As to these Chinese pills, we should not be surprised if they contained aloes, for two reasons:—1. Quacks have a remarkable predilection for this cheap purgative, as will be seen upon a perusal of our previous articles. 2. They are also invariably wrong in localising the countries whence it is obtained.

Morison's Pills, specially prepared, of course, at the institution in the Euston Road, dubbed the College of Health, contain a considerable amount of aloes. No. 1, Morison's, is composed (according to the analysis by Mr. Henry Beasley) of aloes and cream of tartar in equal proportions; No. 2 pill consists of two parts of gamboge, three parts of aloes, one part of colocynth, and four parts of cream of tartar, worked up into pills with the aid of syrup. Nothing wonderful or novel about these pills, at any rate, except that one greatly wonders what there is about them to render it necessary for the proprietors of the nostrum to style their emporium the College of Health, or themselves Hygeists.

Apropos of aloes, this forms a chief component of most quack medicines. Of these we have already described a number in this series of articles, including Beecham's Pills, Holloway's Pills, Mother Seigel's Syrup, Sequah's "Prairie Flower," and "Pink Pills for Pale People." Here is a batch of four analyses of patent pills in support of this statement:—

1. Baillie's Pills. Extract of aloes, $1\frac{1}{2}$ drachm; compound extract of colocynth, $1\frac{1}{2}$ drachm; Castile soap, $\frac{1}{2}$ drachm; oil of cloves, 15 drops in three dozen pills.

2. Dixon's Antibilious Pills. Equal parts of aloes, scammony, and rhubarb, with the addition of a small

quantity of tartar emetic; Castile soap to make up the mass.

3. Eothergill's Pills. Aloes, antimony, scammony, and extract of colocynth.

4. Lee's Antibilious Pills. Aloes, 12 parts; scammony, 6; gamboge, 4; jalap, 3; calomel, 5; soap, 1; syrup of buckthorn, 1; and gum mucilage, 7 parts; mixed together and divided into five-grains pills.

Of a truth, quacks are not over-burdened with inventive genius, always excepting as regards their advertisements and testimonials.

Speaking of these, we find that in the last published article of this series (No. XVI., October 6th) we gave the proprietors of Clarke's Blood Mixture credit for more discretion than they possess; for one of our subscribers has written to inform us that their advertisement in a recent issue of a London daily paper, contained the "bogus" Swaine Taylor testimonial. Like Autolycus, in Shakespeare's *Winter's Tale*, they stick at nothing in their efforts to catch customers. But it is carrying the matter too far when they make disgracefully improper use of the name of a deceased eminent analyst, to puff what Dr. Swaine Taylor in his lifetime wrote of in the following terms:—"Why such a mixture as this should be designated a 'blood mixture' is incomprehensible!" We have given the best of evidence (HYGIENE, August 25th) that the alleged testimonial from Dr. Swaine Taylor, F.R.S., never emanated from that gentleman, and we repeat our challenge (HYGIENE, October 6th) to the proprietors of Clarke's Blood Mixture to disprove our assertion.

CHURCH VENTILATION.

A VERY glaring blot in the hygiene of the present day is the want of proper ventilation in our churches. Our cathedrals were planned on so grand a scale, that their vaulted roofs and broad aisles provide ample cubic space for respiratory purposes. It is not so, however, with all our churches, in many of which ecclesiastical æstheticism holds sway, and hygiene seems entirely forgotten; so that, instead of the House of God proving an example of freshness and purity, it is decidedly the reverse. In the country people say their prayers in buildings which no amount of reverence or old associations can render anything else than damp and devoid of sufficient light and air, and it is impossible to conceal the fact that they would be considered unfit for any other purpose than that of Divine Worship. To compare them with barns is derogatory to the latter, as barns are at least dry, or they would not serve the purpose of storing corn. The

attempts to improve matters in the case of old churches are not always happy; in order to reduce the damp, some heating apparatus is introduced into the building, and this, when lighted, has the effect of drawing forth a plentiful supply of moisture from the mouldy walls, as well as sometimes far from desirable exhalations from the tombs and vaults which underlie the congregation. At the same time, no modes of exit for the impure air are provided, and, were it not for the roof being high, and the time of exposure to these evils limited, the fate of the congregation might be something worse than the "church headache," which some of our contemporaries have lately discussed—arising, like the "theatre headache," formerly much more common in our places of amusement than now (owing to the ill-construction of many of our old theatres), and attributable, in a great measure, to a large assembly of persons breathing a foul atmosphere.

In town churches, matters are somewhat better, owing to the walls being drier and the soil better drained; but, here, as a rule, too much gas is used, and there is too much crowding. I have often heard clergymen and churchwardens admit that, for the warming of their churches during evening service, they entirely depend on the gas and the full congregation, thus ignoring the plain fact that it is impossible to acquire heat in this way without totally sacrificing purity of atmosphere.

The great fault in most churches, both in towns and in the country, is their want of proper outlets for the impure air. When a church is built, the upper parts of the windows are generally arranged to meet this requirement, but in a short time the fatal gift of stained glass comes, and then farewell light and air. The windows are one by one hermetically sealed, and rendered sacred to somebody or other's memory, and any suggestions about casements being made in them to open are regarded as an outrage on art and reverence.

In some churches, where a clerestory exists, it seems, with its double row of cross-lights, free from any suspicion of draughts, to be clearly indicated for purposes of ventilation, and there is little doubt that the old ecclesiastical architects, whose graceful lines of arch and roof have formed models for generations of later ones, had this in view.

It would be well if their modern representatives had imitated their practical skill and sound sense, and had remembered that this clerestory is the nostrils, so to speak, of the building, and should admit fresh air and facilitate the escape of foul. Often, however, the reverse is the case; the windows are choked with stained glass,

as inartistic as it is gloomy, devoid of contrivances for opening and shutting, and the bright light can only struggle through a deeply coloured pane into the building, to which the pure breezes of heaven, a far more necessary, though less evident, element of man's well-being, are altogether denied admission.

These remarks do not, of course, apply to all churches, for some are well lighted and ventilated, but I think my readers will have no difficulty in calling to their recollection examples in both town and country to which my strictures are thoroughly applicable.

In the less crowded churches, if the upper casements are made to open, natural ventilation will be sufficient; and here let me state that stained windows can be made to open like others, without in the least marring the artistic effect. The opening of the small casements which exist at the top of most Gothic windows, would not interfere with the general aspect. In the larger designs, where figures are introduced, the whole window might be constructed to fall slightly inwards, thus allowing air to enter and to escape at the upper part, and the effect to the eye would be the same as when the pictures are hung at an angle to the wall, instead of flush with it. Far from diminishing, this would heighten the æsthetic effect, and the old apostles and saints would stand forth in bolder relief.

Where a more thorough system of ventilation is required, the tower or spire might be made to contain a series of rings of gas jets, or else a hot-water or steam pipe, and thus act as an extracting shaft, communicating with the interior of the church by gratings, through which the foul air would be drawn.

Gothic architecture, even in its purest forms, does not in any degree interfere with the introduction of proper ventilation. The lofty, high-pitched roofs, and the windows generally placed above the level of people's heads, considerably assist ventilation, which can be made to perfectly harmonise with the structural details. In fact, there is no valid reason why churches should not be as well ventilated as other large buildings.

C. T. W.

The United States as a Food-producing Country is regarded by most people as practically without limit, covering as they do a thousand million acres, or nearly twenty times the area of Great Britain; but, according to the statements made in Mr. Wood Davis's pamphlet on the world's consumption and supply, such views are erroneous. Mr. Davis is firmly of opinion that within ten years the United States will cease to be a food-exporting country.

SANITATION IN THE TUDOR PERIOD.

IN the third year of the reign of Henry VIII., the Legislature considered for the first time under what conditions it should be lawful to practise medicine or surgery in England, and an Act was passed limiting the practice to such persons as should be duly examined and approved. The preamble of the Act recites that the "Science and cunning of physic and surgery, to the perfect knowledge whereof be requisite both great learning and ripe experience, is daily within this realm exercised by a great multitude of ignorant persons, of whom the great part have no manner of insight in the same, nor in any other kind of learning," and the Act goes on to provide that "no one shall practise medicine within the City of London, or within seven miles of it, unless he have been examined, approved, and admitted by the Bishop of London or the Dean of St. Paul's for the time being, calling to him or them four doctors of physic, or for surgery other expert persons in that faculty, and for the first examination such as they shall think convenient, and afterwards always four of them that have been approved."

Later on, Henry VIII. founded the College of Physicians, moved by the solicitations of one of his own physicians, Thomas Linacre, and by the advice and recommendation of his Chancellor, Cardinal Wolsey. In 1540 an Act was passed relating to the Barber-Surgeons. The granting of this Act is commemorated in Holbein's masterpiece, exhibited at the Tudor Exhibition.

At the middle of the Tudor period the medical profession consisted of apothecary, surgeon, and physician. Each had a distinctive faculty—the first his familiarity with the uses of roots and drugs; the second, his skill for bleeding, bandaging, bone-setting, and the like; the third, his book-learning, especially in the Greek and Latin. But the apothecary was still a sort of grocer, the surgeon still a sort of barber, and the physician only just ceasing to be an ecclesiastic.

In connexion with a second wave of sanitary progress, there was passed an Act of Parliament, 1532, which provided for the institution of the Commission of Sewers; and, thirdly, must be mentioned successive Acts of Parliament in relation, on the one hand, to the impotent poor, and, on the other, to mendicants and vagrants.

In the early years of Elizabeth's reign, excellent Acts of legislation gave to the country a Poor Law system, which was complete in all essential respects, and was destined to remain valid for centuries.

And, while from a national point of view sanitary legislation made great strides during the Tudor period,

our forefathers were much more alive at that time to the proper management of local affairs than is commonly known. For instance, cheating tradesmen and persons creating public nuisances were promptly punished. Glancing through an interesting parochial history of Westerham, in Kent, edited by Mr. Granville Leveson-Gower, we learn that, in 1575, William Wystnay and Thomas Devin were charged before the Court Leet of Westerham, with making excessive charges to their customers (they being keepers of refreshment houses), and duly punished; and that one Henry Colgate, a baker, was fined at the same court for selling bread under weight. In 1590, John Weeks, of Westerham, was fined for "pitching the sweepings" of his house into the street. In 1593, Bryan Stidolph was fined for having, at different times, washed certain dyed things in the common stream. Elsewhere, we learn from the records quoted by Mr. Gower, that two beersellers were punished for selling beer in improper measures; and that William Thorpe, a wine dealer, got into trouble for exposing his wines for public disposal before the official taster had had an opportunity of ascertaining their quality and purity. Other entries relate to orders given to various individuals to abate sanitary nuisances on or near to their premises. The good folk of Westerham knew, at any rate, something about hygiene 300 years ago, and had a sound, practical way of putting their knowledge to good use. From other similar records of townships in different parts of England it is evident that local sanitation received considerable attention during the Tudor period.

The ancient rampart wall (2240 yards in length) by which Yarmouth was enclosed, had, we are informed by local historians, ten gates pierced in it. One of these was called the Pudding Gate, and opened out towards the Pudding Yard, where the butchers were obliged to deposit daily the refuse from their slaughter-houses, to which the term "Pudding" was applied. In an old book, Bohun's *Privilegia Londini*, may be found the regulation that "the pudding cart of the Shambles shall not go afore the hour of nine in the night, or after the hour of five in the morning, under pain of six shillings and eightpence," no small fine, considering that money was then several times its present value. The *Annals of Cambridge*, 1575, make mention of the Pudding Pit as one of the six common "dungells" (dunghills) of that town.

The first systematic attempt which we know of at recording births, deaths, and marriages, was introduced about the year 1538, by order of Thomas, Lord Crom-

well, who was King Henry VIII.'s vicegerent for ecclesiastical jurisdiction; but the order was only irregularly followed until the time of Queen Elizabeth, in whose reign several injunctions were issued about the matter, and it was made imperative that no other substance than parchment should be used for parochial registers. In connexion with these may be mentioned the Bills of Mortality of a later date; these were founded on the reports of sworn searchers, whose duty it was to view every corpse after death, and to deliver their reports to the parish clerks, who were bound, under pain of a heavy penalty, to keep a proper account of all the burials which took place in their respective districts, and to make a yearly return. Until the Registration Act of 1836, organizing the present system of registration of births, deaths, and marriages, the parish registers and bills of mortality were the only available means of information as to vital statistics.

The public hospitals may be almost said to date from the Tudor period. St. Bartholomew's Hospital, though originally founded by Rahere in 1123, was, until the reign of Henry VIII., a part of the Priory of St. Bartholomew, and a kind of ecclesiastical charity; but after the Priory and its appurtenances came into that king's hands, through the suppression of all the monasteries, Henry VIII. on the petition of the Mayor and Corporation, refounded the hospital by royal charter in 1544. It then had a staff of one physician and three surgeons, including Thomas Vicary, sergeant-surgeon to four monarchs in succession—Henry VIII., Edward VI., Mary and Elizabeth, and author of the first anatomical treatise in the English language. St. Thomas's Hospital was originally an almshouse attached to the Priory of Bermondsey. Coming into the possession of Henry VIII. in a similar manner to St. Bartholomew's, it was purchased by the Corporation of London from that king, who gave it a royal charter. The history of Bethlehem Hospital is like that of St. Thomas's. Previously connected with a monastery, it came into the hands of the monarch at the dissolution of the monastic establishments, and passed from him under the control of the Corporation.

In the reign of Queen Elizabeth, the water supply of London, obtained from numerous public wells and conduits, being found insufficient, a new supply was procured by the erection of waterworks near London Bridge. These were planned by, and erected under, the supervision of one, Peter Morrice, a Dutchman. Three hundred years ago Londoners began to drink Thames water. Have they progressed much beyond

this in our day, seeing that the eight metropolitan water companies derive the principal part of their supply from the Thames and the Lea, both notoriously impure, and having a population of hundreds of thousands of people resident in their immediate vicinity, above the intakes of the companies?

THE HOUSING OF THE PEOPLE IN ENGLAND AND WALES.

IN accordance with the special clause of the Census Act of 1890, providing that "where the occupier is in occupation of less than five rooms, the number of rooms occupied by him" shall be entered in the Householders' Schedule, the Census Report for 1891 now gives, for the first time in the history of the national enumeration, statistics bearing on this important matter. The second volume of the Report, recently issued, summarises the returns made under this heading; from which it appears that out of the 6,131,001 tenements held by separate occupiers at the date of the enumeration, 3,205,705 (52·3 per cent. of the whole number) consisted of houses or parts of houses with less than five rooms; the remainder, 47·7 per cent., consisted of five or more rooms.

The tenements with less than five rooms each may be again arranged as constituting the following percentages out of the entire six millions odd of tenements: only one room, 4·7 per cent.; two rooms, 11·4; three rooms, 12·3; and four rooms, 23·9 per cent. As regards the single-room tenements, out of 286,946, only one person occupied each of 106,671 on the night of the census; in the others the number of occupants ranged from two to six in 175,000; while with respect to more than 3000 single-room tenements, these were returned as having seven inmates or upwards, affording presumptive evidence of considerable overcrowding in their case. But upon this point we shall doubtless learn more when the final volume is published.

Grimsby.—Scarcely has the threatened visitation of cholera been got over than another serious epidemic, viz., typhoid fever, has engaged the attention of the sanitary authorities. Last month 124 cases were reported, and more than 30 this month, while the mortality has been considerable. The majority of the cases occurred in the parts of the town where the brick cesspool system prevailed. It has been decided to condemn over 4000 of these cesspools as insanitary, and it has been recommended to abolish them.

REVIEWS AND NOTICES OF BOOKS.

A Treatise on Public Health and its Application in Different European Countries. By Albert Palmberg, M.D. Translated from the French edition by Arthur News-holme, M.D., D.P.H. 539 pages. (London: Swan Sonnenschein & Co. 1893.)

Having already reviewed this excellent treatise at considerable length, we need not again give a general notice of its contents; but there is one part to which our space prevented our directing attention, and we therefore propose now to deal with it.

It is the section devoted to Statistics, and Dr. Palmberg brings figures—which, like facts, are stubborn things—to prove the importance of public hygiene in diminishing mortality and sickness, and the consequent loss to the community.

Typhoid fever, having a tendency in large towns to assume an epidemic character, is, of all infectious diseases, the one which most clearly demonstrates the influence of hygienic measures. Consequently, as Dr. Palmberg remarks, the extent to which this affection prevails in a given locality may be regarded as a tolerably certain index of its sanitary condition. He gives a table of the rate of mortality from typhoid, exhibited side by side with the death-rate from all causes, in England and Wales, during the past forty years, showing that between 1865 and 1890 the general mortality dropped from 22·5 to 19·5 per 1000, and the mortality from typhoid fever fell from 9·1 to 1·9 per 10,000, the simultaneous drop in both rates being in the decade 1870–1880, when there was a decided movement in public sanitation in the cities and towns. Again, during the period 1870–1891, in London (the population at the two dates named being respectively 3,254,260 and 4,231,431) the general rate of mortality fell from 23 per 1000 to 21·4, at which it stood in both 1890 and 1891, and the typhoid mortality dropped from 4·9 per 10,000 in 1870 to 1·3 only in 1891—an encouraging evidence of the value of improved sanitation in the metropolis during the twenty-one years. In Scotland the mortality from all causes fell from 22·2 in 1860 to 19·7 per 1000 in 1890; and in the years 1885–1889 the general death-rate was only 18·7 per 1000. A correspondingly satisfactory decline in the rate of mortality from all causes was recorded in Edinburgh.

Dr. Palmberg gives a large number of mortality tables of various European countries and their capitals, affording conclusive proofs that wherever public sanitation has been most advanced, there the greatest relative diminu-

tion of the death-rates from all causes and from typhoid fever has been apparent.

While public hygiene has improved in England, military hygiene has not lagged behind. The following table shows the rates of mortality from all causes, and from typhoid specially, in the armies of five countries:—

Country.	Annual General Mortality per 1000.	Annual Mortality from Typhoid per 10,000.
Prussia	5·7	9·5
England ...	8·4	3·1
France	9·2	33·7
Austria	11·2	15·9
Italy	11·6	20·9

Summing up the particulars given in this table, Dr. Palmberg points out that, as the deaths from typhoid fever are occasioned by defective drainage and by bad drinking water, it follows that English military sanitation stands in the first position amongst the five nations mentioned, and French stands last.

Cholera is a disease which, like typhoid, is largely dependent upon sanitary organization, the difference between the two being that the latter is a constant malady, while the former—a disease of tropical origin—is only an occasional visitor. Experience has, however, clearly demonstrated that places where typhoid fever prevails are those most liable to outbreaks of cholera; so that when cholera gets a footing in any town, those quarters of it which suffer most from typhoid are the most likely to suffer from cholera, which, similarly to typhoid, has a marked proclivity for localities which are badly drained, and where the water supply is infected, or the soil impregnated with excrementitious impurities. In other words, the safety of a district during a cholera epidemic is in exact proportion to the efficiency of its sanitary arrangements.

Writing on the subject of national losses from defective public hygiene, Dr. Palmberg shows that the chief impediments in the way of proper organization are, on the one hand, ignorance of its importance and value, and, on the other hand, the initial cost of its establishment. As regards the last-named difficulty, it can be proved beyond question of doubt that the expense of efficient hygiene is considerably less than the loss resulting from its non-provision. In his *National Health and Work* (1884), Sir James Paget enunciated the axiom, “The greater part of the national wealth is the income from the work which is the outcome from the national health.” Sir John Simon showed, before the passing of the Public

Health Act, 1875, that 125,000 persons died prematurely in England every year through bad or insufficient sanitation. Now, calculating the working value of a human being, *i.e.*, taking his or her life to represent a capital sum, the interest on which is equivalent to his annual expenses—Sir Edwin Chadwick put it at £200—and, reckoning the annual number of preventible deaths in England at 125,000, previous to the introduction of an effective system of hygiene, the national loss per annum would amount to twenty-five millions of pounds. But even this enormous sum fails to express the full loss; for if we assume that only 4 per cent. died, then some three millions of persons must have been confined to their beds by illness, and in estimating thirty days as the average period in which they were kept from their usual avocations, we should probably be under rather than over the mark. Further, calculating that one-third of these three million persons were of the working age, *viz.*, between fifteen and sixty years of age, it follows that the national loss in days would be thirty millions. Add expenses for maintenance of the sick, medical attendance and nursing, and the loss on the sickness would amount to, probably, seven millions, making a grand total of £32,000,000. It would be a very costly sanitary organization that would require the outlay of one-fourth or one-sixth of this sum.

PUBLIC HEALTH REPORTS.

Kingston-on-Thames.—Population, 27,059; Medical Officer of Health, Dr. H. Beale Collins. During the quarter ending at Midsummer, the general death-rate was 17·04 per 1000, the average annual mortality for the last ten years being 16·99. Zymotic death-rate was 4 per 1000. The notifications under the Infectious Diseases Notification Act were 148, of which 102 were cases of scarlet fever, 35 of diphtheria, 10 of small-pox, and 1 of typhoid fever. Of the small-pox cases, six occurred in the Union Workhouse, following on the introduction of one from the Back Lanes. Another case was brought from Wimbledon by train, the man having left the workhouse only in the previous week. It should be mentioned in connexion with this case that the railway company's officials, on learning the facts, caused the carriage in which the patient had travelled to be promptly disinfected and put out of use for a time. The diphtheria cases were nearly all traced to the use of well water of a bad character, bad drainage, and general defective sanitation. Speaking of water supply, Dr. Collins says that a good supply from the chalk hills is an urgent need

in Kingston, and he strongly presses its importance upon the consideration of the Town Council. The populous borough of Kingston still remains without an isolation hospital, but we understand that arrangements are being made for remedying this great drawback at an early date. Unfortunately, a compact between the Kingston and Richmond authorities fell through, owing to an apparent disposition on the part of the latter to select a site as near as possible to Kingston, and as far as possible from their own boundaries.

Hampton, Middlesex.—In his last monthly report (September), Dr. Tyndale, Medical Officer of Health, reported that a case of typhoid fever had occurred on one of the house-boats at this part of the Thames. Seeing that the intakes of most of the large London water companies are near Hampton, and that they convey more than 100,000,000 gallons daily from the river to the metropolis, the certainty of infectious diseases like typhoid fever occurring at times both in the house-boats and amongst the population resident on its banks all the way up to Oxford, and even beyond that city, makes one wonder at the eulogistic terms in which the recent report of the Commission on the Metropolitan Water Supply speaks of Thames water for drinking purposes.

NEWS AND NOTES.

Additional Sanitary Inspectors.—As showing an increased recognition of the valuable services rendered by this class of sanitary officials, we may mention that the St. George's Vestry, London, are contemplating the appointment of two additional inspectors. We have heard lately of several places where a similar resolution has been arrived at.

How to Deprive Vivisection of its Horrors.—During the progress of the last General Election, a candidate worn out with heckling, and confused by the multifarious questions put to him at a meeting where the supporters of his opponent were present in considerable numbers, was suddenly asked, "Are you in favour of vivisection?" "Not until the animals are dead," was the prompt and unexpected reply.

The Faith Cure.—Make up your mind that you will be cured by making up your mind that you will be cured, and you certainly will be cured of whatever you can be cured of by making up your mind that you have been cured of it.

Gainsborough.—The Local Board propose to borrow £12,500 for the purpose of completing an artesian well, which has been sunk to a depth of 1351 feet, and will be capable of furnishing 500,000 gallons of pure water.

Agricultural Labourers in Ireland.—A recently published Parliamentary paper, relating to migratory agricultural labourers in Ireland, shows that in 1893 the number temporarily leaving their homes in quest of work was 14,761, being equal to 3·1 per 1000 of the whole population, which was enumerated in 1891 as 4,704,750. Six-sevenths of these migratory labourers came from the province of Connaught, but the most remarkable thing is that a single county, Mayo, sent out 8856 labourers, being more than one-half of all the Irish migratory labourers. From tables published with the report, it appears that 84·3 per cent. of these farmhands sought work in England, 13 per cent. in Scotland and only 2·7 per cent. in Ireland itself.

* * *

Let off too Easily.—A butcher at Cheltenham was summoned before the magistrates for exposing for sale a quantity of pork unfit for human food. The medical officer of health, Dr. J. Garrett, described the meat as "unsound, unwholesome, and unfit food for man." He also gave evidence that when he saw the defendant in his shop, the latter remarked, "What could the people expect at the price they paid?" After some deliberation, the Bench said that the offence was a serious one, and that, taking the Act as it stood, defendant had made himself liable to a fine of £460. But, apparently taking the Act as they chose to administer it, they fined him £5, as this was his first offence.

* * *

The Story of a Coffee Plant.—About twelve years ago the authorities at Kew Gardens sent out experimentally a number of slips of the coffee plant to Blantyre, in Central Africa. All of these died on the journey except one, which was particularly healthy and hardy. It grew, bore seed, and proved so productive that it was the progenitor of a million of plants growing on one estate alone, besides hundreds of thousands of plants in other localities. In three years these coffee plants begin to show a return; and the quality of the Shiré coffee obtained from them is so excellent that not long since it fetched as much as 112s. per cwt., wholesale, in the London market.

ANSWERS TO CORRESPONDENTS.

Dr. Newell (Crowborough, Sussex).—Thanks for the information.

Dr. George Herring.—Article received. We hope to make use of it in an early number.

R. C. (Bristol).—Vol. I. of the reprints of the original series of articles on Patent *alias* Quack Medicines is out of print. You would, however, get all of the articles published therein, with additional matter, if you subscribed to *HYGIENE* from the commencement of Vol. VII. (May 13th).

Perplexity.—You would do well in trying Spence's Alumino-ferric process, described in *HYGIENE* of September 8th.

A Lady Subscriber.—The peptonising powders you mention are prepared by Benger & Co., Manchester, and can be obtained through any chemist.

M. O. H.—Report received. We will send a private reply to your question on receiving your full address.

T. B.—If you require an estimate for your pamphlet, send the MS. to our publishers, who would print and publish it for you.

Mr. Morgan.—The rate of mortality you name is much too high, seeing that no epidemic prevailed at the time. We shall be glad to have further particulars.

H. G. (Marseilles).—In the event of any foreign subscribers experiencing difficulty in getting *HYGIENE* through their local agents, we recommend them to subscribe at our office, so as to have *HYGIENE* sent direct by post.

S. L. M.—The National Health Society, Berners Street, W.

Mr. Harding.—The particulars you give are insufficient for us to frame an opinion upon.

Mr. Roberts.—Knight & Co., Fleet Street, are the publishers of Glen's *Law of Public Health and Local Government*.

S. B. (Boston, U. S. A.).—The annual subscription for *HYGIENE*, sent post free to any part of the States, is 6s. 6d.

EDITORIAL AND PUBLISHING NOTICES.

CORRECTION.—In some of the copies of *HYGIENE* for September 22nd, at page 267, first column, line 14 from bottom, owing to the slipping out of a figure, "1" appears instead of "19." The sentence should read as follows:—"19 were attacked."

EDITORIAL.—The Editor begs to express his thanks to numerous correspondents, and to state that he will be pleased to receive any articles or correspondence coming within the scope of *HYGIENE*, books or pamphlets for review, reports of medical officers of health, items of general or local sanitary interest, newspapers (marked at the part to which it is desired to draw attention), &c.

ADVERTISERS are requested to bear in mind the greatly increased circulation of *HYGIENE*, with its weekly issue and reduced price. In addition to the large regular circulation, many thousands of copies are distributed annually to sanitary officials, medical men, private addresses, public libraries, clubs, hotels, &c.

HYGIENE,

A SANITARY PAPER.

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THE HOUSING OF THE POORER CLASSES.

By THEODORE THOMSON, M.A., M.B., *Medical Inspector of the Local Government Board, formerly Medical Officer of Health for Sheffield and for Aberdeen.*

To every Medical Officer of Health, and more especially to one who has charge of a large urban district, the better housing of the poorer classes is an ever-present problem, of which the partial solution is sufficiently difficult to occupy a large share of the attention he gives to his duties. Such is the magnitude of the task, so great are the various difficulties to be overcome, and too often so small is the meed of success with which his efforts are rewarded, that he may be excused if he occasionally allow a feeling of discouragement to overcome him.

It is not that we of the present day house our poor worse than did our predecessors of fifty years ago. On the contrary, comparison of the evidence around us with the evidence handed down to us from the past shows clearly that in this respect we have improved. Yet one cannot but feel that progress is slow, and that an almost overwhelming task lies before the worker in this field. He who has to deal practically with the subject soon discovers that the poor, with the better housing of whom he is concerned, are so dissimilar, that he makes for himself a rough division of them into two classes, for which, in some respects, different treatment has to be adopted.

There is a class constituted by those whose incomes are small, and to whom the struggle for existence is hard, but who contrive to lead fairly decent and self-

respecting lives; and there is the class which comprises the failures of life—the loafer, the criminal, the drunkard, and a few to whom fate has been unkind, and who have thus sunk to a level, for their presence in which, unlike the majority of their companions, they have not themselves largely to blame.

The houses of the former of these two classes are often fairly comfortable. No one who has much knowledge of the subject is unaware of the fact that the poor but decent working man does not usually inhabit a loathsome hovel. But, although the house he occupies may be as I have described it, yet he is badly off in that he pays too much rent.

A middle-class person, in the receipt of 400*l.* or 500*l.* a year, would not relish having to contribute a sixth, a fourth, or an even larger proportion of his income for house-rent, as the poorer working man has often to do. And, in large towns, his house, whatever its internal condition, is usually situated in a crowded neighbourhood, and gives little opportunity to the tenant of taking country walks, and breathing the fresh country air. Neither is the poor agricultural labourer to be unduly congratulated on his advantage in this respect over his city brother; for, as a rule, the structural defects of his habitation, which is often a mere tumbledown barn, counterbalance the benefits accruing from surrounding open space. The houses of the second of these two classes are of a much worse type of surroundings—in structure and in internal condition. Closely huddled together, with filth of all descriptions accumulated in the vicinity, damp, dusty, and dirty are the houses of the lowest social stratum.

Both at home and abroad the poor may be roughly classified in some such way as this, and those who deal with the amelioration of their dwellings find that in the housing of the poorer classes are involved two distinct problems. I do not mean to say that many of the remedies which apply to the evil conditions affecting the one class do not also apply to those affecting the other; but I do hold that, while there are remedies common to both, there is a point at which, because of the very different characteristics of these two classes, divergence takes place in the course to be pursued.

During the past forty years there has been at home and abroad a great deal of legislation bearing both directly and indirectly on the housing of the poorer classes. Such legislation has been very different in different countries. The rate of progression of such legislation, and the manner in which the laws have been put in force, have varied much, and, at the present day, the leading civilised countries are far from having the same legal provisions on this subject. It may well be, indeed, that the legislation which is suitable for one people is unsuitable for another; or that means other than legislative, adopted with success for the amelioration of the condition of the poorer classes in one country, are unfitted to succeed with those of another. But some methods, applicable to all, or to more than one, there are sure to be.

In England and Scotland the health officer has many opportunities of aiding in the improvement of the poorer class of houses by seeing, so far as lies in his power, that the provisions embodied in the various Health Acts, and in the Housing of the Working Classes Act, 1890, are carried out. Many of these provisions are of great utility, and no medical officer who does his duty need feel that he has failed to help towards the betterment of his less fortunate fellow-men. But if his heart be in his work, he will also feel that he would fain have done more than he has been able to do, and you will find that he is ready to criticise the means he has had at his disposal, to comment on the methods of utilising such means, and to suggest improvements in both these directions.

For example, the existing law is not always enforced as it ought to be. This may be the fault of a sanitary authority which has more sympathy with the property owner than with the property occupier; or it may be the fault of the official charged with the care of the public health, who may not sufficiently spur his authority to do its duty. To my mind, the remedy for both these defects is the same. The person best fitted to see that a sanitary authority does its duty is the Medical Officer

of Health, and if there be a good health officer there is a good guarantee that this duty will be done. But at present there is no certainty that a good health officer will be provided, even in the majority of districts in this country; on the contrary, there is a certainty that many unsatisfactory officials will be appointed. For this I do not blame my professional brethren, but rather praise the large number who, for a nominal recompense, devote, to the detriment of their private practice, a totally disproportionate share of their time to public work. What is to be expected in the way of the amelioration of the condition of the poorer classes for 5*l.* per annum? And yet there are districts in which that amount, or even less, and many others in which but little more, is paid to the official who nominally supervises the health of the people. Even in those districts where the Medical Officer of Health receives a more suitable salary, a difficulty is placed in the way of his stimulating the sanitary authority by making him liable to be dismissed by them from office at their pleasure. Many health officers, notwithstanding this, faithfully point out to the sanitary authority their duty; but why, I ask, should such a difficulty be put in their way? In Scotland, under the recent Local Government Act, a step in advance has been taken by making the appointment of county medical officers compulsory, and by rendering their dismissal without the consent of the central authority impossible. It is difficult to see why this principle should not be applied with good effect to England, or to any other country.

When one reflects that the real pivot on which turns the carrying out of the Housing of the Working Classes Act, 1890, is the Medical Officer of Health; that to him, in that Act, constant reference is made; that on him, when possible, is thrown responsibility; that, therefore, according to his capacity or incapacity, his time or want of time, will the Act be efficiently or inefficiently administered—it clearly becomes very desirable that for each sanitary district, or combination of districts, there should be such an official, suitably paid, and not liable to be dismissed at the pleasure of any local body, whose apparent interests he may have damaged. With a good staff of efficient and independent Medical Officers of Health, the Housing of the Working Classes Act, 1890, will be put in operation more effectively than any of its predecessors, or than it is itself otherwise likely to be. This want of health organization I regard as one of the great obstacles to the abolition of the present insanitary dwellings of the poor, and their replacement by more suitable habitations,

But, given a suitable administrative staff throughout the whole country, the question that next arises is whether the laws under which they would work are sufficient for the purpose for which they are intended. To this question I think an answer is found in the fact that every year are formulated provisions, which sometimes fall to the ground, sometimes pass into law in private or in general Acts. An example of the difficulties which beset the path of the health officer is found in the 91st Section of the Public Health Act of 1875, where the word "nuisance" is so defined as to frequently render it impossible for a magistrate to order the abatement of insanitary conditions. Most health officers probably have discovered that the street sewer may ventilate itself directly into a bedroom without creating a nuisance according to law. Any reader of a sanitary journal will constantly find in its columns similar complaints, accompanied by suggested improvements of the existing sanitary laws.

In connexion with the Housing of the Working Classes Act, 1890, arises an important economic question. I have said that the poorer working-man pays too much rent for his house. In that Act powers are given to sanitary authorities to deal with unhealthy areas—powers which, in some of the larger towns, are being utilised, and which will aid in providing more suitable and relatively cheaper dwellings for the poor. Whether it will suffice remains to be seen. He would be a bold man who would maintain that legislation of this class will stop where it now is. The difficulties met with in attempting to properly house the poor are enormous. As things are at present, the poor man has, in large towns, to live near his work, in order to save the cost of daily transit, to economise by dining at home, to be nearer the great provision marts, where he can procure cheap food, and to enable his wife and children to find in the neighbourhood of their home some occupation which will eke out his scanty income. Hence results accumulation of poorer labourers near their work, with consequent great demand for shelter, and a fictitious value of house property.

It is an example of the much-admired law of supply and demand, in which the demander, being heavily handicapped, suffers severely. Is he to have better wages? Is his house-rent to be lowered? or, Are facilities to be given him to live farther from his work? And if so, How are all, or any, of these things to be done? All these are matters which lie at the root of the question; and the Medical Officer of Health, while he knows that such things are officially beyond his province,

yet feels that this health question is really an economic question, and that the true solution is an economic one.

In the same way the dilapidated building, occupied by the poorer class of agricultural labourers, is likely to persist, so long as the labourer is in receipt of a wage that does not enable him to pay a rent sufficient to return any interest on the capital necessary to erect a decent cottage. Should his sanitary authority build him a cottage and let it to him at a loss? Or should he have a higher wage, and how is he to get it? Or should he have a land allotment with his cottage to enable him to pay a remunerative rent? These are not questions for a Medical Officer of Health to settle, but the settling of these will do much to settle the sanitary question with which he is concerned.

Something else will have to be done with the lowest class of all. Of these it may be said that, were they to-morrow housed in a palace, they would in ten days make it a pig-sty. For them remedies are required other than those needful for the class immediately above them. No doubt they will, despite themselves, to some extent, be benefited by sanitary improvements of their dwellings, by demolition of unhealthy areas, by improved lodging-houses under the existing laws. But so long as there is an insanitary building left they will go to it, for they do not admire sanitation. They will avoid all model dwellings, for they do not wish to be cleanly and orderly as there prescribed by rule, and they will destroy and fill with filth any interior that becomes theirs.

It is to be hoped that in process of time the benefits of education will effect some improvement in the members of this class, but it must be a long time before these benefits create any appreciable effect. Private effort, such as the noble work of Miss Octavia Hill and others, is one of the means to which one may look with hope. Possibly registration of all the worst class of houses, somewhat on the Glasgow model, with frequent and stringent supervision of the habits of the inmates, might be useful. Such supervision would not be pleasant to the inmates; but it is, perhaps, desirable that life should not be made too pleasant for this class of society, most of whom deserve no sympathy other than that which one bestows upon the victims of heredity.

There are some points of my subject into which I have not gone at any length, and others to which I have not even alluded. What I have set myself to do is, rather, to convey the leading impressions suggested to me by my experience as a Medical Officer of Health. Briefly summarised, these impressions are, that although the present sanitary laws are open to improvement, yet that

the most crying present need is not so much change of, or addition to, those, as a thoroughly efficient and complete system of health administration by capable and independent medical officers throughout the country; and that the final and complete solution of the problem of how to house the poorer classes is inextricably bound up with a great social difficulty, of which the settling will come to pass, either prior to, or coincidentally with, the settling of that which has been the subject of this paper.

NEWSPAPER PRESCRIBING.

A CURIOUS development of modern journalism is the gratuitous medical advice offered by many newspapers to their sick and afflicted subscribers. Nowadays one can hardly turn over the leaves of a certain class of weekly literature without coming across columns of prescriptions in answer to medical questions put by numerous correspondents who would appear to suffer from every imaginable complaint.

Judging from many of the replies, the prescribers' connexion with medicine must be very remote, and their knowledge of the healing art equally limited; yet one must suppose the advice given is, in the majority of cases, followed by their trusting inquirers, and the medicine taken as well. That such a practice is at once reprehensible and harmful, most intelligent persons may readily judge, seeing that even a medical practitioner would not consider himself able to so properly diagnose and prescribe for a complaint from a written description of the symptoms, as if he had an opportunity of seeing the patient.

Indiscriminate prescribing of this kind also induces self-dosing, and the abuse of drugs, by hypochondriacs and others, who constantly imagine they are afflicted with one complaint or another. Although able, these people will not pay a fee to a qualified practitioner, but will write to their favourite weekly paper, so long as the advice costs nothing, and describe their many symptoms in the most perplexing language. They are perfectly ignorant of the risks run. We have frequently noticed large doses of powerful drugs and preparations ordered in the prescriptions of those literary medical Solons, which if taken as prescribed would have serious ill effects. Such medicines in nine cases out of ten must do more harm than good to those who are unwise enough to take them.

As an instance of this danger, we noted a prescription given recently in a newspaper, in which no less a quantity

than *two ounces of prussic acid* was ordered in a lotion for the skin! Another journal recommended the following mixture for debility, dyspepsia, &c. :—

Sulphate of Quinine 1 ounce.

Aromatic Spirits of Ammonia ... 8 ounces.

Dose.—*One to three fluid ounces* in water or sherry.

This speaks for itself.

Fortunately for the protection of the public the chemist acts as a safeguard, and if such recipes were taken to him he would doubtless warn the person of the danger in using them. He would certainly not be justified in making up a recipe containing a scheduled poison such as prussic acid unless it was properly signed by a medical man.

The medical authorities are practically helpless, having no legal powers to act in the matter and protect the public against this abuse. The danger is none the less a grave one to the public at large, who are usually so ignorant of medicine that they will swallow any compound on a still less authority than that of appearing in print.

It would be impossible to estimate how much injury may have already been done in this way. The matter is one which those who have the safety of the public in their charge would do well to look to. C. J. S. T.

[We fully endorse the opinions expressed by our contributor on a matter which is of serious importance, and on which he is well qualified to speak, from long editorial experience. We have always discouraged the practice referred to, though frequently applied to for medical advice through our columns. "I have a pain in my back,"—a lady wrote to us not long since—"kindly tell me in your paper what I ought to take for it." We gave her our invariable reply, "Take the advice of any qualified medical practitioner in your locality," adding—"On reference to the *Medical Directory* we find that there are fifteen resident in your town, any one of whom is fully capable of treating your case." Two days afterwards we got our thanks in the shape of an abusive letter from the lady's husband, who complained of the *ungentlemanly* and *mean* character of our reply, and said that whenever he wanted medical advice he always wrote to the editor of a sanitary paper, which he named, and was duly prescribed for in the next issue of the periodical. On looking through a current copy of that journal we noticed upwards of forty prescriptions, some of them enough to raise the hair off one's head with astonishment and amazement at the amount of ignorance and recklessness displayed. The most remarkable thing

about this particular journal is that its editor does not hold any medical qualification whatever. Perhaps this circumstance accounts for his partiality for recommending patent medicines, which he seems to have taken under his special protection, both in his prescribing columns and in his advertisement pages.—

ED. HYGIENE.]



ADVICE TO INVALIDS VOYAGING IN QUEST OF HEALTH.

By ARTHUR J. MOSS, M.B., Ch. B., M.R.C.S., &c.

THE wonderful curative effect of a sea voyage in many cases of chronic disease has been so long known, and so often prescribed successfully, that it has come to be regarded by many as a sort of panacea for almost all the ills that flesh is heir to. Patients have been, and are still being sent to sea in hundreds in pursuit of health, believing often that a sea voyage must inevitably cure, after all other means have failed. Consumptives in all stages still rush to the ocean in crowds, undeterred by the fact that many die on the voyage; the instances in which recovery has occurred seem to make both doctor and patient oblivious of all others, and many a patient has been sent to sea *as a last chance*. As a result of this indiscriminate use of a curative agent, which, like all other valuable remedies, is potent both for good and harm, many a life has been recklessly thrown away through ignorance of the actual conditions to which the patient must be exposed. Theoretically, a sea voyage with abundance of fresh air, light, and free exposure to ozone-laden breezes, as well as freedom from mental worry, seems like the invalid's Utopia, until he actually comes face to face with the coincident conditions under which those benefits are obtained. Of all sea-voyages, perhaps, the one most frequently prescribed is that to the Antipodes in a sailing vessel, and I shall endeavour to show that this is by no means always the best proceeding.

As a rule this voyage is begun in autumn, so that the patient may escape the winter in England. He will probably leave London about October or November, and arrive in the Colonies about February or March, and during this period will experience a great many changes in temperature and weather, generally accompanied with rain and perhaps snow, and will be astonished to find no stove in the saloon. In nearly all passenger sailing-ships bound to the Antipodes, there is no means whatever of warming the saloon; as a consequence, ports, skylights, and doors are carefully closed, ventilators are blocked up,

and the lamps are kept burning as long as possible, until some sort of warmth is felt. Meanwhile, the passengers, driven in by inclement weather on deck, mope about in steaming overcoats in an atmosphere not much better than that of a coal mine after an explosion of fire-damp. It must also be remembered that in a sailing-ship the one saloon has to serve all purposes; it is alternatively dining-room and drawing-room, and is only separated from the sleeping berths by thin wooden partitions, perforated for ventilation at the top. Under climatic conditions like those indicated, the only haven of refuge from bad weather rapidly becomes almost uninhabitable.

When the ship has got to about the latitude of Madeira, all this wretched state of affairs changes, the weather becomes fine, and perceptibly warm, skylights are thrown wide open, and life on board a sailing-ship becomes pleasure, indeed. Every one is up on deck all day long thoroughly enjoying blue sky, sunshine, and pleasant breezes. As soon as the sun's power begins to make itself felt an awning is spread over the poop to keep saloon and state-rooms cool. The passenger now commences the day at sunrise, when all the males turn out and receive their morning shower bath from the hose as the men are washing decks. A cup of coffee and a biscuit immediately after do not in any way interfere with the enjoyment of a more substantial breakfast at the proper time. The early morning before breakfast is the only time during the day in the tropics when any one feels disposed for active exercise, and most people devote it to that purpose. The rest of the day is spent in idling about from one meal to another, while every one is perfectly happy, and invalids really experience the benefit they expected to find. Right through the tropics the same sort of thing continues, the heat at sea scarcely ever becoming unbearable. The passenger will have had up to now a month to five weeks of really fine weather, in which alone he can reap benefit from a voyage in a sailing-ship, and there will now begin for him a period of five or six weeks among rain, snow, and cold. In order to make a fast passage, sailing-ships go down a long way to the south, often as far as 50 deg. S. Strong westerly gales, snow, rain, and bitterly cold weather now prevail. Icebergs may be met with, indeed the writer was amongst ice for a week in 42 deg. S., and naturally intensify the already low temperature. Here again the passenger experiences the discomforts due to want of proper means of warming the saloon. Many have now become so well acquainted with the ship, that they make friends with the cook, and sit before the galley fire, seeking the comfort nowhere else to be found. Such is the state of

affairs for a saloon passenger; in the steerage and second class the case is infinitely worse. The accommodation here consists of rough wooden partitions knocked together in the 'tween-decks of the ships, space usually occupied by cargo, and in cold or wet weather the discomfort is extreme.

The food on board a sailing-ship is usually good, and the variety under the circumstances often really surprising. One necessary commodity is, however, deficient; the supply of fresh water, even for saloon passengers, is decidedly limited, while in the steerage it is served out in fixed quantities to each passenger daily.

This sketch of the actual state of affairs is taken from the writer's log, while a passenger on *one of the best* of the passenger ships trading to the Antipodes, and may be fairly taken as representing the usual conditions to which the invalid is exposed. It must not be forgotten that such a ship after once leaving England will not touch any port, or ever perhaps see land for three months, and thus any invalid on board must perforce remain, even if he finds himself rapidly getting worse. On the whole, the writer would only counsel the voyage in a sailing-ship for a consumptive, within narrow limits. As regards the patient, his disease should be incipient, not rapidly progressive; he must not have any rise of temperature, or night sweats, and he must have no tendency to hæmoptysis. He must choose his ship carefully, see that there is a stove in the saloon, and find out what route she takes. Some ships do not go nearly so far to the south as others, and are, therefore, to be recommended.

On board a modern passenger steamer going to Australia and New Zealand, things are widely different from the sailing-ship. In cold weather the cabins and state-rooms are all kept at a uniform pleasant temperature by means of steam heating pipes, they are lighted by electricity, avoiding the smell and vitiation of the air by paraffin, and they do not go into the extreme southern latitudes, where bad weather prevails. The objections to the rattle and vibration of the engines, and the smell of oil is entirely obviated for saloon passengers, because the saloons and best state-rooms are in a modern ship in the forepart of the vessel, right in front of the engines. Other advantages are—the better food with better cooking, better attendance, ice every day in the tropics, and unlimited fresh water. Steamers call at least once or twice *en route*, giving any passenger, who is getting worse, the chance of leaving the ship. The hygienic advantages are indeed almost all on the side of the steamer. The class of cases most benefited by a sea

voyage may now be briefly mentioned. Besides incipient phthisis, consolidation of the lung not properly resolved after pneumonia, is materially benefited; pleurisy effusions also where the fluid is not too great in amount soon become absorbed. The overworked business man suffering from nervous exhaustion, anæmia, and dyspepsia will regain new life after a long voyage in a sailing-ship, for in his case the very length of the voyage and continued absence from worry is of material benefit. Patients suffering from bronchitis, in whom the heart is unaffected, often recover very rapidly. A dipsomaniac should never be sent to sea in a passenger ship, because the facilities for obtaining alcohol, and the temptations of the other passengers, usually prove too strong for his weak will to withstand. For such a case a voyage in a yacht, in which alcohol is excluded from the dietary, would do much good, but is too costly a measure for persons of moderate means. As a cheaper method, a voyage in a cargo boat can usually be arranged after a little inquiry, and as no alcohol appears at table, may be safely advised. Many of these so-called "ocean-tramps" are extremely comfortably, if not luxuriously arranged, and have often much larger and more airy sleeping accommodation than mail steamers. Their only drawback is that the food, though good of its kind, is usually very plain; after a few days at sea, however, the appetite becomes so great as to crave not dainties but quantity.

Drugs in sea-sickness are generally useless. Usually it really begins when the patient attempts to rise and dress after his first night at sea, and the best thing he can do is to stop quietly in bed until he has had some breakfast, to correct the faintness which always precedes the nausea. After a while let him have a little champagne, dress rapidly, and go on deck, remaining there as long as possible. This plan the writer has known to be successful in preventing sea-sickness, or lessening its terrors to several people, who had been habitually sick every voyage.

With regard to outfit, but little can be said in a paper like this, but the writer would advise every one to take abundance of woollen clothing, including a thick knitted jersey such as sailors wear, and especially a good mackintosh, sou'-wester hat, and sea-boots, for by their aid the passenger will often be enabled to remain on deck, when one not so armed must inevitably remain below. Plans of the cabins of the various ships can be obtained from the owners, and should be attentively studied by every intending passenger. The principal points for guidance in the selection of a berth are (1) size of state room and number of berths in it;

(2) position—not near w.c. or steward's pantry; (3) as far forward as possible. In a sailing-ship a berth on the port side is generally preferred, but there is practically no real difference.

What the invalid should do, and where he should go on his arrival in the Colonies, demands equally as careful consideration as the voyage itself, but space forbids this subject being treated in an efficient manner in the present article.

PATENT ALIAS QUACK MEDICINES.*

By the EDITOR.

No. XVIII. (New Series.)—Electric Belts; Nicholson's Patented Artificial Ear Drums; Mattei's Electricities.

"Gullible, however, by fit apparatus all Publics are; and gulled with most surprising profit."—CARLYLE.

WHEN the Sage of Chelsea penned these lines in *Sartor Resartus*, he must have enjoyed a cynical chuckle over the Publics who allow themselves to be taken in by the swindling "arts of Puffery and of Quackery," the "grand over-topping Hypocrisy," as he writes further on. Little wonder, indeed, is it that he reckoned up these blind believers in quack advertisements and nostrums as

"mostly fools!" By "fit apparatus" he meant, of course, the means devised for trapping such people as the large class of the public who put faith in the patent *alias* quack remedies.

For our present purpose, however, we will take the word "apparatus" in its narrowest sense. One of our correspondents, speaking of electric belts, describes the case of an unfortunate man, a labourer, dying from cardiac dropsy, and so poor that he could barely get food enough of the humblest kind, who was persuaded by his credulous neighbours to lay out his little all in the purchase of the much-vaunted and extensively advertised electric belt.* Of course, the man derived no benefit from his purchase, and soon afterwards died. Our friend got permission from the relatives to examine this *precious* apparatus, after the decease of the poor dupe. What did it turn out to be? Why, half a dozen discs of tin, as big as a florin, neatly sewn into a flannel belt, not worth as many farthings as the poor fellow had been robbed of shillings. Yet these fraudulent apparatus are advertised in the leading papers, some of them journals which would decline to insert announcements of most of the ordinary quack remedies in vogue. One of these papers, for instance, had not long since, in its advertising columns, a long rigmarole about electric treatment, commencing with a "magneto-galvanic sleep promoter" at two and a half guineas, and winding up with "the electro-spiral hood to keep life in patients dying from exhaustion until the treatment has time to take effect. Price £500!" Great Scott! Which is most to be wondered at—the mendacity of the advertisers, the folly of the purchasers, or the weakness of the publisher of a high-class paper in allowing its columns to be made the medium of such a palpable imposture? And this sort of thing goes on day by day, week by week, and month by month, in hundreds of papers bearing a high character for respectability and veracity—religious papers being the greatest offenders, a circumstance from which an unbiassed observer might deduce the conclusion that their readers are not of the most intelligent classes—until one blushes for journalism. Indeed, the electro-magnetic charlatans find ink and paper such a profitable investment that they run papers of their own, for the sole purpose of puffing their own

* The widely spread interest in the original series of articles published under this title in *HYGIENE*, and the great demand for the two volumes of reprints (VOL. I. has run out of stock, and only VOL. II., price 1s., sent post free by our publishers for 14 penny stamps, remains in hand) have induced us, at the request of thousands of our readers, to bring out a new series, containing many fresh reports and analyses, in addition to those which have previously appeared. The following articles have already appeared in this series. It should be mentioned that the new volume of *HYGIENE*, VOL. VII., began on May 13th, 1893, so that subscribers to that volume will have the complete series.

No. I. (May 13th) included:—Patent Medicines; Patent Medicine Law; Mattei's Electro-Homœopathic Remedies. No. II.—(May 20th), Clarke's Blood Mixture. No. III.—(May 27th), Clarke's Blood Mixture; Chlorodyne and other Opiates. No. IV.—(June 9th), Revalenta Arabica. No. V.—(June 16th), The History of Patent Medicines; The Sequah "Prairie Flower" and Oil. No. VI.—(June 23rd), Holloway's Pills and Ointment. No. VII.—(June 30), Correspondence about Holloway and Mattei. No. VIII.—(July 7th), Concerning Advertised Testimonials of Clarke's Blood Mixture. No. IX.—(July 14th), Allen's World's Hair Restorer; Mexican Hair Restorer; Singleton's Golden Ointment for the Eyes; Rowland's Kalydor and Gowland's Lotion for the Skin; Mrs. Anna Ruppert's Skin Tonic; Mattei's Electricities. No. X.—(July 28th), Quack Advertisements and Testimonials; Mother Seigel's Syrup; Clarke's Blood Mixture and the late Dr. Swaine Taylor. No. XI.—(August 11th), Clarke's Blood Mixture; the Alleged Testimonial from the late Dr. Swaine Taylor, F.R.S.; the Obverse and the Reverse. No. XII.—(August 25), Quacks' Testimonials; Mother Seigel's Syrup; Clarke's Blood Mixture. No. XIII.—(September 1st), Beecham's Pills. No. XIV.—(September 15th), Pink Pills for Pale People. No. XV.—(September 29th), Warner's "Safe Cure." No. XVI.—(October 6th), Quack Advertising; Clarke's Blood Mixture and the Bogus Testimonial from Dr. Swaine Taylor, F.R.S. No. XVII.—(October 20th), Anonymous Abuse; Warner's "Safe Cure" and Medical Staff; A Quack Libel Case; Morison's Pills; Baillie's, Dixon's, Fothergill's, and Lee's Pills; Clarke's Blood Mixture Testimonials.

* It should be mentioned that part of this article appeared originally in *HYGIENE* fifteen months ago. We believe that *HYGIENE* was the first paper to expose the electric belt humbug. We are glad to find that some of our contemporaries, like the *Pall Mall Gazette*, have taken up the cudgels against this form of quackery; and we should welcome their co-operation in exposing the numerous others to which we have directed attention in our columns.—ED. *HYGIENE*.

wares, while at the same time they make desperate onslaughts upon each other. Thus, *Modern Medicine*, a monthly periodical, published in London, endeavours to convey to its readers that Matteism and miracle working are convertible terms, and wild wagers are offered, asserting that the Mattei electricities* will promptly cure every known malady.

But let us shift the venue from London to Geneva, and we find there a so-called Electro-Homœopathic Institute, whence issues a monthly magazine printed in English, devoted to electro-homœopathy and to damaging attacks on Mattei, whose former agent, a Mr. Sauter, owns the paper and an opposition shop. Some of these are not wanting in humour. For instance, a letter is given, written by Mattei, to a newly appointed agent, showing that Mattei more than makes up for his want of scientific knowledge by his superabundant bombast. The translation is as follows:—"Assuredly you will not lack gold or millions. You will attract it as a magnet attracts iron. You have the magnet in your intelligence and your activity. Farewell, my dear sir; work with your ability, and I guarantee a good result." How is that for high? As a specimen of lofty rhodomontade, we know nothing to equal it. Hannibal crossing the Alps, Drake setting out to encounter the Spanish Armada, Napoleon on his march to Moscow, could scarcely have used more inspiring words. Yet, though they have a ring about them, it is a false ring, brassy in sound, inspired only by a desire for filthy lucre. But, as Burns said, "The best-laid plans of mice and men aft gang a-glee." When the agent had spent much money in advertising—that goes without saying, as it is a quack medicine we are writing about—and had given much time and trouble to the business, Mattei picked a quarrel with him, refused to pay the agreed commission, and was, says his agent, Mr. Sauter, guilty of much meanness and injustice. However, this kind of treatment of his agents, judging by the numerous instances quoted by Mr. Sauter, is as much part of the Mattei method as the globules are. The only pity is that these rivals do not imitate the famous Kilkenny cats, and annihilate each other, instead of perseveringly obtaining the sinews of war from their deluded followers.

Passing from electric to aural apparatus, we may refer to a much-advertised instrument guaranteed for the complete eradication of deafness. Some years ago, an acquaintance, a London solicitor, consulted us for

deafness. In the course of the consultation it came out that, attracted by an advertisement, he, although in a profession which ought, like freemasonry, to have taught him to be cautious, was "fool enough" (we quote his own words) to spend—we forget how many—guineas upon the purchase of "Nicholson's Patented Artificial Ear Drums," *gold* of course! Finding his hearing seriously impaired by their use he had flung them away. They may be described as follows:—"Two straight pieces of gilt brass wire, three-quarters of an inch long, one-sixteenth thick, and with a roughly made knob and a disc of thin indiarubber, half an inch in diameter, at each end; a little loop of silk cord to hold it by." The purchaser is directed to wet one of these instruments with a lotion (charged extra) containing glycerine, ether, and morphia, and to thrust it into the ear, "until the natural drum is reached, and the end with the large disc well set into the outer ear." It makes one shudder to look at it, and, still more, to think of the mischief, aural and cerebral, it may do, and is certain to do, if left in the meatus. The injury caused to thousands of people who were inveigled by advertisements and testimonials into investing many more thousands of pounds in such worthless, dangerous apparatus, must have been incalculable. Yet Nicholson was allowed by the police and by the Medical Council to go on for a considerable space of time (several years) advertising in metropolitan and provincial newspapers for dupes, from an address in one of the principal squares of central London, more often than not styling himself "Dr." Nicholson. Eventually, he formed a limited liability company, drew most of the cash, and then vanished. There are laws for the repression of theft and fraud, and societies for every available purpose, including putting down begging and imposture. Why should not the Authorities do their duty by putting into effect the laws against fraud, misrepresentation, and obtaining money under false pretences in such cases as these electric swindles, and by modifying the Patent Medicine Law, so that every patent medicine bottle, box, or packet issued shall be required to have placed conspicuously upon it a label setting forth its actual composition? The sale of patent medicine stamps would doubtless be diminished by such a salutary regulation; but the term "patent" would then be a reality instead of, as at present, a ridiculous misnomer, while the loss to the revenue would be a trifle as compared with the saving of public money, and even of life.

* The analysis of these by Mr. Stokes, F.C.S., published in *HYGIENE* for May 13th, sums them as—*Water*, "nothing more."

THE HEATING AND VENTILATION OF BOARD SCHOOLS.

THERE are so many points involved in the consideration of these two matters that any accurate investigations concerning them cannot fail to be of importance, especially when conducted on a sufficiently large scale, like those which formed the subject of a report to the School Board of Dundee, by Dr. Thomas Carnelley, a member of the Dundee School Board, and Professor of Chemistry in the University of Aberdeen.

For the purpose of the report, Dr. Carnelley personally visited and obtained detailed information from no fewer than 150 different schools, having a total accommodation for 111,000 children. With only a few exceptions these were public schools under the Dundee, Aberdeen, Edinburgh, Newcastle, Leeds, and Salford Boards. Detailed information was also obtained in reply to printed forms, from 173 different Board Schools, with accommodation for 165,000 children in Greenock, Bradford, Sheffield, Nottingham, Northampton, Leicester, Birmingham, and Liverpool; while general information was procured from the London, Glasgow, Accrington, Govan, Manchester, Paisley, and Finchley Boards. Besides all the particulars from public schools, accommodating more than a quarter of a million pupils, numerous experiments were made in the mechanically ventilated schools in Dundee, Aberdeen, Govan, and Paisley, with a view to measuring the volume of air passing through the schools, the amount of gas consumed by the gas-engine, etc., and the effect produced by filtering the air mechanically introduced into the rooms. The amount of labour involved in the production of this report must have been very considerable, and, in point of fact, the obtaining materials for the report and drawing it up occupied nearly a whole year.

Of the various methods of heating, it appears that the one most extensively used is the system of large hot-water pipes (low pressure). Out of 311 schools examined in this respect, 147 were found to be warmed in this manner, while only 82 were heated by open fires; 32 partly by open fires and partly by stoves; only five (all in Salford) were warmed by hot air.

The most common mode of ventilation is by the ordinary admission of fresh air by open windows or doors, or, in many cases, by Tobin's tubes; whilst the usual outlet is the open chimney or ventilators placed in the roof.

The first cost per head of the different methods of heating and ventilating is not so much affected by the size of the school as might have been expected. The

"open fire" schools in Dundee would appear to be much "underfired," as compared with other towns; and whereas the general average in other towns is one fire to every 60 pupils, there is only one fire to every 80 in the Dundee schools. In Newcastle-on-Tyne four times as much coal is burnt per fire as in Aberdeen, and nearly three times as much as in Dundee; and the consequence is that, although coal is very much dearer in these two Scotch towns than in Newcastle, yet the cost per fire is nearly twice as much in the English town as in the former. Indeed, the figures furnished by Dr. Carnelley show that the cheaper the coal the greater is the quantity consumed by each fire. When we consider, too, the fact that the number of fires to a given number of pupils is less in Dundee than it is elsewhere, so that, taking every point into account, only three tons of coal are burned in the Dundee schools as against seven tons in six other Scotch and English towns, we cannot but endorse the conclusion arrived at by Dr. Carnelley, viz.:—Either that the school children are being comparatively frozen in Dundee (also in Aberdeen), or that they are being roasted in Newcastle, as well as in Leeds, where a similarly high rate of consumption of fuel prevails. We believe that the relative quantity of coal burned in Newcastle and Leeds schools is more than is consistent with wise economy.

As to the annual cost of heating and ventilating, it is distinctly greater in small than in large schools; and this observation especially holds good with respect to the mechanically ventilated schools. A comparison of the annual cost per head of the different systems scarcely shows any difference between the "natural" systems, except that stoves are, on the whole, the cheapest, and small hot-water pipes (high pressure) the dearest method, and mechanical ventilation costs more than the ordinary methods, in the proportion of nearly £20 per annum for a school accommodating 1000 children; but this comparison is made under conditions which are most unfavourable to the mechanical system, owing to the calculations having to do chiefly with towns where coal is most economically used.

With regard to the efficacy of various systems, those in which the rooms are heated by radiation rather than by conduction, the air is much more highly charged with micro-organisms than in the methods where conduction is the principal way in which the heat is conveyed.

The recommendations which close the report are very important, and should be carefully weighed by all the School Boards about to erect new schools. Mechanical ventilation should be preferentially employed, says Dr.

Carnelley, for the following reasons: 1. It is more comfortable, the rooms being kept warmer, and the temperature being more uniform and more equally distributed; whilst draughts are as far as possible avoided. 2. It is much healthier, and prevents the spread of infectious diseases, owing to the rooms being supplied with purer air. 3. Its sanitary advantages make themselves felt in the fact that the children are enabled by its adoption to derive greater benefit from their education. 4. It increases their grant-earning power without increasing the labour of earning the grant. 5. It increases the teaching power of the teacher. These advantages more than compensate for the extra cost entailed by mechanical ventilation as compared with ordinary methods, which, including both annual expenses and interest on first cost, is about £39 a year in a school of about 1000 children, or 9½d. per head. For a school of 1500 children, the ratio would be only three-fourths of that for one of 1000 scholars. The cost could be further lowered by reducing the customary height of the rooms by one or two feet, which could be effected without in any degree detracting from the health or comfort of the children. A two-horse power gas-engine should be used as a motive power for driving the fan. A 48-inch fan should be used as the air propeller. The fresh air should be blown in and not sucked out of the school. High-pressure hot-water pipes should be used for heating. The heating pipes should be placed in the air-chamber, and not in the flues; this would reduce the first cost. Arrangements should be made for mixing cold air with the warm, when necessary, before the latter enters the rooms. The air and heating chambers should be arranged in the basement. There should be only one main inlet air-shaft, but of large size; and it should be freely open at the top, and not fitted with Louvre boards. The incoming air should be filtered through coarse jute cloth placed diagonally across the huge inlet flue, and inclined towards the current of air, so as to allow of the filtering cloth being readily cleaned without being taken down. It may be mentioned, in passing, that these simple and cheap filters are so effective in removing much of the solid impurities from the air, that in the course of a couple of months several pounds' weight of soot and dust are accumulated upon them. A jute cloth filter having an area of fifteen square yards, would cost only 2s. 6d. with about 10s. in addition for the wooden frames. The frames will last for years, the filter-cloth doing service for a year. The use of these filters increases the volume of air passing into the room by steadying the current.

The fresh air inlet shafts should be much wider and

shallower than is commonly the case, so as to distribute the air in a thin stream, and to minimise the amount of draught. Schools should be built to accommodate a large number of children, large schools being heated and ventilated much more economically per head than small ones, especially when mechanical ventilation is used.

We will conclude this article by quoting Dr. Carnelley's summary of the *pros* and *cons* of the various systems which he had under his observation.

CERTAIN ADVANTAGES AND DISADVANTAGES OF THE SEVERAL SYSTEMS.

OPEN FIRES.

Advantages—

- (1) More cheerful.
- (2) First cost much less than hot-pipe systems.
- (3) Keeps air fresher than hot pipes, owing to draught up chimney.
- (4) So far as the Dundee schools are concerned, the temperature in the open fire schools was higher than in those heated by hot pipes.
- (5) The rooms of these schools will probably need painting less frequently than those heated by other systems.

Disadvantages—

- (1) Greater labour in service.
- (2) Slightly greater annual cost than stoves, or steam-pipes, or large hot-water pipes.
- (3) Unequal distribution of heat.
- (4) Air more highly charged with micro-organisms.

STOVES.

Advantages—

- (1) Smallest first cost.
- (2) Least annual cost.
- (3) Probably more effective heaters than open fires.

Disadvantages—

- (1) Greater labour in service.
- (2) Require more attention than open fires.
- (3) More liable to smoke than open fires.
- (4) More liable to get out of repair than open fires.
- (5) Not so cheerful as open fires.

HOT PIPES.

Advantages—

- (1) Less labour in service than either open fires or stoves.
- (2) The class is not disturbed as in the case of attending to open fires and stoves.
- (3) More equal distribution of heat.
- (4) Air less charged with micro-organisms than when open fires are used.
- (5) On the whole the annual cost is probably *slightly* less than with open fires, but more than with stoves.

Disadvantages—

- (1) Not so cheerful as open fires.
- (2) First cost much more than in the case of open fires or stoves.
- (3) Air not so fresh as with open fires.

MECHANICAL VENTILATION.

Advantages—

- (1) Much greater purity of air as regards all the constituents.
- (2) Efficiency of ventilation much more independent of the weather; whereas, with other systems, the ventilation is worse when most needed.
- (3) The schools are warmer.
- (4) More equal distribution of heat and of fresh air.
- (5) Very effective in diminishing the number of micro-organisms, not only at the time the mechanical ventilation is in operation, but also for a long time after it has been stopped.
- (6) Reduces draughts to a minimum.

In fact, the mechanical system heats and ventilates far better in every respect than any other system, and is, therefore, far more conducive to health and comfort, and to success in teaching and learning.

Disadvantages—

- (1) Greater first cost.
- (2) Greater annual cost (except in the case of very large schools).
- (3) Though in a town where several schools were heated and ventilated mechanically, there would not need to be more than an ordinary caretaker in each of such schools, yet *one* of these should be a man who had some knowledge of gas-engines, etc., so that he could attend to any repairs which might be necessary. Such a man would require a somewhat higher wage than an ordinary caretaker. This, however, would amount to very little if distributed over a number of schools.

THE FOOD AND COOKERY EXHIBITION.

We regret that pressure of matter and the insufficient time at our disposal prevent our doing more in this issue than to direct our readers' attention to the Food and Cookery Exhibition, now being held at the Portman Rooms, Baker Street, under the auspices of the Universal Cookery and Food Association. It is the best of a good series of Exhibitions, of which it is the seventh, the first having been held in 1885.

We strongly recommend all whom this number of *HYGIENE* may reach before the close of the Exhibition on Saturday night, to avail themselves of the opportunity to visit it. The food exhibits are very numerous, and nearly all of them are excellent in quality, while many are novel in character. The attractiveness of the cookery competitions and object-lesson lectures goes far to prove the correctness of the assertion made by Mr. George Augustus Sala, in the interesting and instructive preface which he has kindly contributed to the catalogue that

cookery is one of the fine arts, humanising and refining in its nature and results.

We purpose in our next issue (Friday, November 3rd) to give a detailed account of the principal exhibits.

THE CAUSATION OF EPIDEMIC DISEASES.

By GEORGE HERRING, L.F.P. & S.G.

THE poisons which produce epidemic diseases still continue to baffle and perplex us, notwithstanding the amount of research brought to bear on the subject. There must be a law, or laws, of some kind which regulate their production and distribution, but at present such law, or laws, are too obscure and inaccessible to our senses, to our reasonings, and to our experiments, to allow of our formulating any positive views upon this matter.

The fashionable doctrine now is that these diseases are produced by germs. What are germs? Where do they come from? How many different kinds are there? Does each kind produce its own specific disease? By what means are they conveyed from one infected person to another? These are some of the questions which might be asked; but who is prepared to answer them?

I suppose a germ is something substantial, ponderable, visible under a microscope. One can comprehend the existence of a germ as the producing cause of *some* diseases—*e.g.*, typhoid fever; but what about the influenza germ? I do not believe there is such a germ. In typhoid fever we have a disease which is caused by the ingestion of some solid or palpable substance, such as impure water or milk. In this case we can well believe that the poison is also something substantial. We can also understand that this is a preventible disease. We have only to take care what we eat and drink to be secure from this disease. How different is influenza! In this disease no sanitary regulations whatever will prevent its advent. The atmosphere we breathe is charged with the poison, and we must either inhale this or go without air, which is manifestly impossible.

I am inclined to look upon typhoid fever or cholera as the only epidemic diseases depending upon the presence of a germ. But looking at the originating cause, and considering that they are not infectious diseases, it may be questioned whether they should not rather be called *endemic* diseases. They are of a local character, and the air does not become contaminated wherever they exist. It is possible that this classification of cholera as an *endemic* disease may not

apply to *every* visitation of it; but certainly as it appeared at Hamburg we must class it with typhoid fever, and suspect the presence of a germ.

The true epidemic diseases are—scarlet fever, diphtheria, measles, whooping cough, typhus and relapsing fevers, small-pox, and influenza. Now what is their source? I venture to suggest that it is a gaseous one. In the case of influenza there is not a doubt about it, and we have no reason to think that this is the only disease so originating.

It is generally supposed that each disease owes its origin to a separate and distinct poison. But are we sure that our catalogue of these epidemic diseases is a true and correct one? Are there just so many; no more, and no less? This is open to question.

For some months I have been studying the Vital Statistics furnished from the Registrar-General's Department, and what do I find? I find that week after week, and month after month, there are certain diseases ever existing amongst us. These are scarlet fever, diphtheria, measles, whooping cough, and certain ill-defined fevers. Where we have one, we have all. This is remarkable. If we suppose that all these are due to separate poisons, how is it that some children take one, some another, and some another? Who can explain this? Or, again, if we consider that all these diseases owe their origin to the same identical poison, how are we to account for the difference of symptoms developed? Thus, whatever view we take, we are confronted by difficulties hard to explain; in fact, we cannot explain them. In favour of the *identity* of poison, I can adduce an extraordinary circumstance. In the statistics given about the middle of last month, all the diseases above named were shown to be prevalent in England; but in Dublin at the period referred to, there was not a single death from "either measles, scarlet fever, diphtheria, or whooping cough." So it would appear that these diseases either exist simultaneously, or are altogether absent. It is true that they may have existed that week in Dublin, and yet that there were no deaths from any of them, which would certainly be very remarkable. About this we have no information. It certainly is a notable fact that during the present year these four diseases have never been absent from London, and deaths from all of them have been regularly reported week after week.

I am convinced that a careful study of meteorology would afford us some information concerning these epidemic diseases, for I look upon them as being contingent upon the varying conditions of the atmosphere, and that the poison, or poisons, which give rise to them

are of a gaseous nature, but whether through some modification of the oxygen, or through the existence of some gas foreign to the normal constitution of the air, remains to be determined.

THE DISPOSAL OF REFUSE.

THERE are two ways of doing any action—a right and a wrong. The right one commends itself to the approval of every reasonable individual, and is attended with satisfactory results, both to the doer and to those persons who are within the range of his influence. If our neighbour, for instance, should have a quantity of refuse matter on or about his premises, his duty is to dispose of it in some manner that will not only free himself from the nuisance, but that will spare others from trouble or annoyance. To throw it over the party wall of his garden would—all will admit—be obviously unfair and improper. Let him, on the other hand, dispose of it in the most innocuous way upon his own premises, bury it or burn it, and no one will find fault with him. As with individuals, so it is with sanitary authorities. The moment that a sanitary authority attempts to get rid of a nuisance, like town refuse, by selfishly removing it into another locality, that authority is in the wrong. Indeed, the act of removal is of itself *prima facie* evidence that the matter removed is of an offensive or injurious nature. Otherwise, why go to the expense of removal?

We happen to know, through residence in Surrey, that the inhabitants of many parts of that county are agitated and aggrieved by the policy pursued by the Corporation of Richmond as regards the disposal of the town refuse. Very few towns would care to have filth in their midst longer than could be helped, and Richmond is doubtless with the majority on this question. Consequently, the Corporation, as the urban sanitary authority, have, we are informed by a member of the Surrey County Council, entered into a contract for the removal of the town refuse, and have stipulated for its being taken, with all due expedition, "anywhere, anywhere," as the song says, "out of"—Richmond. The contractors, finding it less troublesome and more profitable to convey the stinking stuff out of the immediate neighbourhood than to treat it chemically, or to wholly destroy it, have hit upon the expedients of subsidising farmers to cart it on to their land in the adjacent districts, or of paying the carriage by rail to any station within moderate distance. Thousands of loads of town refuse of every conceivable kind, rotting and reeking with foul odours, are thus conveyed through the villages and along the pleasant country lanes, to the great discomfort and annoyance of all who are so unfortunate as to have this pestiferous manure carried in open waggons past them and their houses, or, worse still, deposited on land near to their homes. That such a condition constitutes a serious public nuisance, and is manifestly dangerous to the public health, no sane person would venture to assert; and it could not have existed so long but for

the helplessness of individuals and the almost criminal supineness of the various rural sanitary authorities most concerned. In fact, where these authorities have not been absolutely indifferent, they have actually abetted the perpetration and perpetuation of the nuisance by refusing to listen to any complaints made, or to inquire into the circumstances which have led to such complaints being made. We should advise people who have complained with such bitter cause, and who have been met either with contemptuous neglect or with vague excuses about the necessity of fertilising the land, to submit their case to the Local Government Board. But there is a quicker and, from several points of view, a more satisfactory solution of the difficulty. Instead of paying several shillings a load for the removal of the refuse from Richmond into other localities, let the Corporation of that borough meet the difficulty as sensible men should do, and devise some means of destroying the refuse as it is collected, without waiting for it to accumulate till it becomes semi-putrid, and without incurring censure and blame by sending it into other districts. This salutary and very desirable improvement might be effected without any formidable expense, by the erection of a refuse-destructor like that described in *HYGIENE* for October 6th. Indeed, taking into consideration the heavy outlay now incurred, we believe that the adoption of this method of disposal of town refuse would ultimately be found more economical than the present inadequate, annoying, and dangerous system.

NEWS AND NOTES.

Sunderland.—The Corporation have adopted an important scheme for the demolition of a number of houses unfit for occupation in the poor quarter of the town, and the erection of suitable working-class dwellings on the same site. Some four hundred persons will thus be temporarily displaced, and the improvements will cost a large amount.

Cheap Bread.—Some time ago we noticed in our columns the very low price at which the contractor at Spalding supplied the guardians of that Union. Only recently a fresh contract has been entered into by the same guardians, whereby good wholesome bread is to be delivered at the work-house for the next three months at the cheap rate of 2½d. per four-pound loaf.

Vegetable Bitters and Tonics are much more used in the United States than on this side of the Atlantic, although their consumption here has greatly increased during the last few years. Out of forty-seven different bitters which were submitted to examination by the official analyst to the Massachusetts Board of Health, forty-six contained alcohol, notwithstanding the fact that its alleged absence was, in many cases, advanced as a reason why teetotallers should

have recourse to these drinks. One of them, described as a purely vegetable extract, "a stimulus to the body without intoxication," showed on analysis, 41·6 per cent. of alcohol, and two "stomach bitters" contained respectively 42·6 and 44·3 per cent. of alcohol. The particular tonic which had 41·6 per cent. alcoholic strength was specially recommended by its vendors for inebriates struggling to reform, because "its tonic and sustaining influence on the nervous system is a great help to their efforts." The bearing of these analyses may easily be imagined when it is considered that sherry has only from 18 to 20 per cent. of alcohol in its composition.

The Motives of Suicides are strange, and afford material for psychological study. It was said that the late Sir Thomas Watson was called in to attend a gentleman at the West End who had attempted self-destruction. When asked his reason for trying to commit suicide, he replied, 'I am tired of eating and drinking, dressing and undressing.' This story is capped by the following:—Bored out man gets up in the morning. 'What, I've got to wind up that beastly watch again? No! I'd rather die first.' So taking a pistol he blew out his brains. This anecdote suggests to our mind a triple moral for those gentlemen of ease whose life has become a nuisance to them:—1. Wind up your watch overnight; or 2. Buy a keyless one; or (last though not least effective) 3. Find some useful occupation for mind and time, and live, not simply vegetate.

Not Reduced to Water Drinking.—An amusing story is told in connection with Mr. Baily Denton's visit of inspection into Somersetshire. Some shallow, muddy pools, hollowed in the lias formation, formed the only water supply of a certain village. When he arrived there Mr. Baily Denton was horrified at the mud holes whence, he presumed, the villagers obtained their drinking-water. Turning to the hale old native who acted as his guide, Mr. Baily Denton exclaimed, 'Is this the water you drink?' 'What did you say, zur?' was the surprised reply, and the question had to be repeated more than once before the Somersetshire man could grasp its drift. At length he did so, and, with a burst of hearty laughter, he cried out: 'Oh, Lard bless 'ee, noa, zur: we don't drink no watter down here; we've got plenty of good zider in Zummerzet!'

Test for Adulteration of Butter.—Sulphuric acid is a simple but certain test. Fresh, pure yellow butter, upon being brought into the slightest contact with sulphuric acid, turns to almost a pure white, while butterine, made from animal fat, changes to a deep crimson red. When lard or other oils are used, the colours are diversified, and show all the tints of the rainbow.

Carbonic Acid from Gas-burning.—The amount of carbonic acid given off by a single gas jet, in a given time, is as much as would be formed by the exhalations from the

lungs of seven grown-up persons. This fact is in itself a sufficient explanation of the headache, lassitude, and other signs of injury to health which result from remaining long in a gas-lit room that is not properly ventilated.

Dangerous Machinery.—The Projectile Company (Limited) were summoned lately at the South-Western (London) Police Court for not fencing certain dangerous machinery, in consequence of which neglect a man in the Company's employ received severe injuries. After hearing the evidence of Mr. Redgrave, Inspector of Factories, and various witnesses, the magistrate imposed a fine of £20 with costs.

Fever in the Metropolis.—There are now in the Metropolitan Asylums Board's eight hospitals for infectious disease 3089 patients, including 2699 cases of scarlet fever, 108 of typhoid fever, and 273 of diphtheria.

Any excuse is better than none must be the reason why a baker, who was recently summoned for selling bread of deficient weight (his 4 lb. loaves weighed scarcely 3 lb. 5 oz.), gave as his excuse that he had been trying for many years to make his bread lighter than that of any one else in the trade.

A New Convalescent Home will shortly be erected by the authorities of the Middlesex Hospital at Clacton-on-Sea, a salubrious seaside place, situated on the east coast, and easy of access from London. We described the advantages of Clacton-on-Sea as a health resort in *HYGIENE* for July 7th. Five acres of land have been purchased for the house and grounds.

ANSWERS TO CORRESPONDENTS.

W. R.—The calculation of estimated increase of the population of a town or district is effected on the following basis:—Take the actual increase in the ten years between the two previous census returns; divide by ten, this would give a year's estimated increase; for a part of a year, divide in proportion; thus three months' estimated increase would be represented by one-fortieth of the last ten years' increase. Supposing the population of a town to be 50,000, and the actual increase in the previous ten years to have been 5000; then the tenth of 5000, viz., 500, would represent the estimated increase for one year.

A Country Doctor (Wiltshire).—We are glad to find that our articles on "Patent *alias* Quack Medicines" are so useful in opening people's eyes to their folly in believing the monstrous falsehoods contained in quack advertisements and circulars. We have numerous medical gentlemen amongst our subscribers who purchase considerable quantities of different numbers of *HYGIENE* to give to such of their patients and friends as stand in

need of enlightenment concerning the ways of quacks and the composition of the stuff which they puff as capable of curing all diseases under the sun.

M. O. H. (Ireland).—What you mention would be thought most unusual in England, and we should advise you to decline to comply with the unreasonable request made by the Board.

Dr. Philpots (Parkstone).—We are obliged to you for drawing our attention to the matter, which had previously engaged our notice.

S. B. (Falmouth).—An article on Cornwall as a Health Resort will appear in our next number.

Mr. T. Pridgin Teale (Leeds).—Thanks for your letter.

A Lady Reader.—The only diet likely to answer satisfactorily in your little one's case is Benger's Food for Infants. It is the best article of its kind. As to medical treatment, call in a local practitioner. We do not prescribe in our columns.

Dr. Hector M. Wilson (Sunderland).—Thanks for the permission to use the article.

Lady Victoria Lambton.—The report has been accidentally delayed. We now return it.

Mrs. Heron (Glasgow).—We have had several communications on the subject of Handyside's quack preparations, and shall give a report and analysis in an early number.

A Sanitary Inspector.—The process you inquire about is called the alumino-ferric, and invented by Messrs. Peter Spence & Co., The Alum Works, Manchester. See full description (illustrated) in *HYGIENE* for September 8th, 1893.

Mr. Allen (New York).—*HYGIENE*, being registered at the General Post Office for transmission abroad, can be sent to you for fifty-two weeks for 6s. 6d.

EDITORIAL AND PUBLISHING NOTICES.

EDITORIAL.—The Editor begs to express his thanks to numerous correspondents, and to state that he will be pleased to receive any articles or correspondence coming within the scope of *HYGIENE*, books or pamphlets for review, reports of medical officers of health, items of general or local sanitary interest, newspapers (marked at the part to which it is desired to draw attention), &c.

ADVERTISERS are requested to bear in mind the greatly increased circulation of *HYGIENE*, with its weekly issue and reduced price. In addition to the large regular circulation, many thousands of copies are distributed annually to sanitary officials, medical men, private addresses, public libraries, clubs, hotels, &c.

HYGIENE,

A SANITARY PAPER.

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BRITISH HEALTH RESORTS.*

No. VIII. (New Series).—CORNWALL.

OUR grandfathers had a quaint way, whenever they wished to be particularly impressive about anything they were describing, of entering into a kind of fictitious dialogue, by means of which they put before their readers the *pros* and *cons*, the arguments for and against any point under discussion. In a book, now rare, published at the earlier part of this century, and entitled *A Guide to Mount's Bay*, Dr. Paris, then practising at Penzance, adopted this method, and gave an imaginary conversation between a physician and an invalid seeking the former's opinion concerning the British and foreign health resorts as winter residences. Dr. Paris, who, at a subsequent period of his life became a leading medical authority, and rose to the position of President of the London College of Physicians, vindicated in a logical and successful manner the claims of some places in our own country, giving the pre-eminence to Penzance, on account of its mild and equable winter climate, added to which were the advan-

tages which it shared with other home resorts of enabling the patient to be amongst his countrymen, and in the enjoyment of accustomed comforts not to be obtained abroad.

The places on the Continent in chief repute at the period of which we are writing, as winter residences for persons suffering from chest affections—that large class significantly described by French writers as "*poitrinaires*"—were Rome, Marseilles, Montpellier, Toulon, Hyères, and Nice. The first four of these have gone down to zero in estimation; Rome, on account of its generally insanitary condition, and the other three on account of their variable climate, and of the occasional severe winds by which they are visited, injurious to all who happen to be exposed to their influence, but especially inimical to persons with delicate lungs. Hyères and Nice continue to hold their own in the list of winter resorts, but even these two places are not free from cold, piercing blasts. Hyères has its share of the much-feared *Mistral*, during the prevalence of which it would be almost surely fatal for a consumptive patient to venture out of doors; while Nice is exposed to bitter, cold winds from the east and north, particularly in spring.

The fact is that in selecting these places as winter residences for invalids, one point only was taken into consideration—viz., the general mildness of the temperature, all other points being left out of sight. But with improved knowledge of climatology, and with closer and more accurate observation to guide them, it gradually dawned upon writers on this subject that there are other and still more important questions than that of mere relative high temperature, and that the best

* The object of this series is to direct attention to the merits of different British Health Resorts, too often overlooked and neglected by persons who are put to much expense, trouble, and loss of time, in visiting Continental Spas, instead of availing themselves of the facilities open to them in their own country. The following places have already been described:—No. 1, Swanage (with illustration), *HYGIENE*, May 13; No. 2, Lowestoft (illustrated), June 16; No. 3, Clacton-on-Sea and Walton-on-the-Naze, July 7; No. 4, Yarmouth (with illustration), August 4; No. 5, Ilfracombe (illustrated), August 18; No. 6, Cromer (illustrated), August 25; No. 7, Malvern, October 13.

winter climate for a consumptive, or, indeed, for any invalid, is one which, while affording a mild temperature, is also equable, and free from abrupt variations or trying winds.

When, therefore, we come to a consideration of the question in its broadest aspect, such localities as Cornwall (we refer particularly to the southern portion of that county) in our own country will stand well the test of comparison with the fashionable resorts in the south of France. Certainly, the former cannot produce various attractions which help to swell the crowd of English visitors to the latter, such as the gambling saloons of Monte Carlo, the pigeon-slaughtering contests at Nice, and other amusements of like nature; but we need not concern ourselves about these matters, as we are writing for persons in pursuit of health, and not for so-called pleasure seekers.

The mean temperature for the winter months at Falmouth, Penzance, and Scilly contrasts favourably with that of various Continental resorts, but the meteorological superiority of the former shows itself more especially in the small amount of daily range of temperature. Thus, taking the month of February, the mean temperature of the English places named and of several Continental places was as follows:—Falmouth, 45·1°; Penzance, 45·20°; Scilly Isles (St. Mary), 46·9°; Montpellier, 44·8°; Pau, 43·6°; Nice, 46·2°; Cannes, 48·8°; Mentone, 49·1°. According to these figures, Cannes and Mentone would both seem superior to the English winter resorts, if the mere question of thermal condition were considered; but the fallacy of taking this as the sole test of the value of any place as a winter residence is evident when we come to the mean range for the six winter months. This at Scilly is only 3·5°, at Falmouth 3·7°, and at Penzance 4·64°; while at Mentone it is 9·6°, at Pau 10·6°, at Cannes 10·7°, at Nice 11·0°, and at Montpellier 15·3°. In other words, the minimum ranges are all at the English winter resorts, the maximum variations at the Continental. The significance of these temperature variations is too evident for us to dwell further on them. The reason why those of the Cornish winter resorts are so limited will be found in the circumstance that the Atlantic Ocean, bounding Cornwall, is practically an immense reservoir of warm water, replenished and maintained at a high temperature by the Gulf Stream, so that around the Cornish land, even in the depth of winter, the temperature of the surface water seldom falls below 46°, while further out at sea, beyond the influence of the land temperature, the water is much warmer.

A good indication of the favourable nature of the winter climate of Cornwall may be obtained from the character of its flora, many exotic plants growing in the open air. Professor Daubeney, F.R.S., drew attention to this interesting and important fact in his *Lectures on Climate*, in which he published a list of plants too delicate to be grown in the open air at the Botanic Garden, Oxford, yet flourishing luxuriantly in Mr. Dorrien Smith's garden at Tresco, in the Scilly Isles, and in Mr. W. Fox's gardens at Grove Hill and Penjerrick, near Falmouth. Amongst the exotic plants growing in the open air are agaves, which thrive and flower abundantly, reaching a height of more than twenty feet; aloes; acacias, attaining a height of thirty feet; *aster argophyllus* (the Australian musk), twenty feet high; bamboos; cannas; eucalyptus, one specimen at Penmere, near Falmouth, being sixty feet high, and producing seed annually; myrtles; palms; yuccas; and many other, of which a full list and detailed account may be found in a paper by Mr. Upcher, who was awarded for it the medal of the Falmouth Naturalist Society.

The principal localities suitable for invalids wintering in Cornwall are Falmouth, Penzance, Fowey, Marazion, to which may be added the Scilly Isles. There are various other places, such as East and West Looe, which would be equally eligible if suitable accommodation were provided.

Falmouth, formerly one of the principal ports in the south of England for ocean mails, is fast coming into estimation as a winter resort. Its splendid natural haven, in connexion with which are numerous creeks (that of the Fal is especially beautiful, and has been compared, in respect of its charming scenery, to the Rhine), its position on the slopes of the hills sheltering it on the land side and affording splendid and extensive views, the luxuriant vegetation, the mild equable climate, all assist to make Falmouth a delightful residence.*

The mean temperature of the month of January at Falmouth is 2° above that of Montpellier, and 3° warmer than Pau; and the range of temperature is much less than at either of those places, and, indeed, as has been already stated, at several other highly vaunted Continental resorts.

Sir E. Sieveking, M.D., writing a few years back in a leading medical periodical, speaks of Falmouth as "one

* For a general description of this part of the country, we may refer our readers to 'Falmouth and Its Surroundings,' published by Mr. Edwin T. Olver, Falmouth.

of the most delightful parts of Great Britain that it has been my good fortune to visit," and, in fact, the whole of his article is laudation from beginning to end. In evidence of the salubrity of Falmouth, he mentions that the death-rate of the locality is only ten per thousand per annum. If a similarly low rate of mortality were attained throughout the kingdom, it would mean the saving of hundreds of thousands of lives yearly. Writing more recently, Sir E. Sieveking says: "I am satisfied that a large number of patients who are now sent a weary journey to the South of Europe would benefit much more by a visit to a well-selected residence at Falmouth."

All that has been said and written of Falmouth applies with equal force to Penzance, which is almost in a straight line with Falmouth, but nearer to the Land's End; on the southern shore of Mount's Bay, which derives its name from St. Michael's Mount, a picturesque rock surmounted by an old castle, situated in the central part of the bay. It has a charming outlook, with the bay in front of it, bounded on the east by the jutting promontory known as the Lizard Point, on the west by the extreme part of Cornwall—indeed, of England—terminating in the Land's End.

The climate of Penzance is even milder than that of Falmouth, while it shares with it the valuable peculiarity of uniformity, the daily and monthly range of temperature being much less than that of Mentone, Nice, Cannes, and other fashionable winter resorts in the South of Europe. The prevailing winds between November and April are those from the south, the south-westerly being the most prevalent of all. During their continuance there is scarcely any difference of temperature between night and day. As regards the monthly ranges, the average difference between the maximum and minimum mean temperature at Penzance, in a series of meteorological observations extending over twenty years, was 6° in the month of December; the same in January; and in February and March respectively, 7°. The highest temperatures for the same period ranged in December between 51° and 56°; in January between 50° and 55°; in February between 51° and 56°; and in March between 53° and 59°.

We must not omit to mention that at Penzance, Falmouth, Fowey, and Marazion, invalids, desirous to avail themselves of the advantages of suitable winter resorts without quitting their native land, will find excellent hotels and lodgings.

The Scilly Isles, off Cornwall, whence they can be reached by the steamer from Penzance in about four

hours, possess a most remarkable winter climate. The temperature approaches that of Nice, and at the same time it is uniform; so that while the absolute maximum temperature in the Scilly Isles does not reach quite so high as that of Nice, the minimum very rarely falls so low.

Throughout this article we have spoken of Cornwall as a winter health resort; partly on account of the comparisons which it was requisite to institute with various localities in the South of Europe. But we should, indeed, do a great injustice to Cornwall if we omitted to refer to the numerous advantages which make it desirable as a resort in summer, whether for invalids or for persons in quest of change of scene, pure air, and relaxation from professional work or business cares. The climatic conditions which make Cornwall milder than any other portions of England in the depth of winter tend to moderate the temperature in the height of summer: so much so that it has been truthfully and expressively remarked that the month of January is as warm at Penzance as it is at Madrid, Florence, and Constantinople; while the month of July is as cool as at St. Petersburg.

In selecting a locality for spending their summer holiday, people are too apt to follow a beaten track. They often visit the same place year after year, because it is "handy," till they become familiarised with every nook and corner of it. Now, this circumstance alone must go a long way towards reducing the relative proportion of benefit to health derivable from the holiday. The residence is changed, it is true, and the daily round of professional or commercial pursuits is suspended, but that is about all. The facilities for travel are now so great and so inexpensive, as compared with what they used to be, that there is no longer any excuse for thus minimising the benefit and pleasure derivable from taking a holiday, and for remaining unacquainted with some of the many attractive localities in our own country, such as those to be found in the county which has formed the subject of this article.

Romford and the district surrounding this thriving Essex town are suffering from a serious outbreak of diphtheria. All the schools have been closed.

The Potato.—The relative extent to which this tuber is used for food in different parts of the kingdom may be partly judged from the amount of land under potato-cultivation. Out of every 1,000 acres of arable land, the proportion used for growing potatoes is 31 acres in England, 41 in Wales, 42 in Scotland, and 190 in Ireland.

THE WATER SUPPLY OF OLD LONDON.

THE reference to this subject in the article on "Sanitation in the Tudor Period," published in *HYGIENE* for October 20th, has brought us several letters of inquiry. As the matter is one of considerable interest, both to the antiquarian and to the sanitarian, we purpose to devote a short article to it.

At the time of the Norman Conquest (1066), and for some two hundred years afterwards, during which period London was limited in area to a portion only of what is now termed the City, its inhabitants got their water supply from the following sources:—The Thames, in the south; the River of the Wells, afterwards called the Fleet River, and in more modern days known as the Fleet Ditch, on the west; the Walbrook, a stream which ran alongside London Wall, and thence through the heart of the City to the Thames; a fourth stream, or 'bourne,' the course of which was through Fenchurch Street and Lombard Street, at the end of which it turned southwards at Sherbourne Lane, to empty itself into the Thames. This stream, on account of the length of it within the City boundaries, was called Langbourne, its name being continued up to the present date in that of Langbourne Ward, one of the divisions of the City. Outside the City, to the westward, there was a fifth stream, called Oldbourne, subsequently Holbourne—toned down still later to Holborn—which, passing Holborn Bars, ran down the hill to Holborn Bridge, where it joined the River of the Wells.

But old Londoners were not limited to the supply obtainable from what were then described as "fair, open streams," as there were numerous wells connected with springs in the different localities, such, for instance, as Holy Well (giving its application to Holywell Street), Clement's Well, and the Clerks' Well (whence the name of Clerkenwell is derived).

Towards the end of the thirteenth century, however, the gradual increase of population and of building in the metropolis rendered it necessary to devise new schemes of water supply for the citizens; and, accordingly, about the year 1285, a large leaden cistern, encased in stone for protection, and called the Great Conduit, was erected in Cheapside. The water with which it was filled was conveyed by a conduit from the then distant rural locality, known to the modern Londoner as Paddington. Various other reservoirs or conduits for water were established in different parts of London at later periods; of these the only relics are to be found in the names of certain streets, such as, for instance, Lamb's

Conduit, so called in honour of the memory of one W. Lamb, a wealthy citizen, who, at his own expense, restored in 1577 one which had existed near Holborn Cross for some eighty years. A class of men, "Water Bearers," derived their living from the trade of carrying the water in large vessels (holding about three gallons) from the conduits to the houses in the vicinity.

As has just been noted, in connexion with the Lamb's Conduit, these reservoirs, for the most part erected at the cost of wealthy and charitable individuals, were liable to fall into a state of decay; so that it became customary for well-disposed persons possessed of means to bestow in their life-time, or leave after their death, sums of money for the special purpose of the maintenance of the conduits. The civic authorities periodically visited them in great state for the purpose of inspecting them; on which occasions there was considerable merry-making, as will be gathered from the following quaint description given by Stow, in his *Chronicle of London*:—"On the 18th September, 1562, the Lord Mayor, Aldermen, with many worshipful persons, and divers of the masters and wardens of the twelve Companies,* rid to the Conduit-heads, for to see them after the old custom; and afore dinner they hunted the hare and killed her, and thence to dinner at the head of the conduit. There was a good number entertained with good cheer by the Chamberlain. And after dinner they went to hunting the fox. There was a great cry for a mile, and at length the hounds killed him at the end of St. Giles's. Great hallowing at his death, and blowing of horns. And thence the Lord Mayor, with all his company, rode through London to his place in Lombard Street."

Again, notwithstanding the number of these conduits and the size of their cisterns, the water supply became inadequate, and in the reign of Queen Elizabeth water-works for drawing a supply from the Thames were erected from the plans of a Dutchman, Peter Morrice, as mentioned in our former article.

Yet again, the demand exceeded the supply, and from the reign of King James I. until well into the last century the citizens were not compelled, like modern Londoners, to drink Thames water; for Sir Hugh Myddelton conceived and executed the splendid idea of bringing pure water from the springs at Chadwell and Amwell, in Hertfordshire, some twenty miles from the Metropolis, and out of Myddelton's scheme arose the New River Company. But, in 1739, the increased con-

* The twelve chief City Companies, or Guilds, are here referred to.

sumption, with the prospect of competition, tempted the directors to get a supplementary supply from the River Lea. Fifteen years before that date, the Chelsea Water Company, founded in 1723, had commenced to draw from the River Thames, a pernicious example followed by four other great water companies, established later on, viz., the Grand Junction, the West Middlesex, the Southwark and Vauxhall, and the Lambeth Water Companies. These five companies supply to London daily, more than ninety million gallons of Thames water; while the East London Water Company supplies nearly fifty million gallons of water daily from the River Lea, another polluted source. How long will the inhabitants of London be deluded by the optimist statements of Royal Commissions and monopolist water companies, and thus be prevented from seeking a pure and adequate water supply? Surely they will not wait until some fearful epidemic furnishes them with an appalling object-lesson on the folly of relying upon polluted sources for one of the first necessities of life.



THE HYGIENE OF HANDWRITING.

By JOHN JACKSON, F.E.I.S.

I THINK it was Lord Palmerston who once remarked that "Writing is almost as important as speaking, because every man, whatever his station in life may be, must have constant occasion to convey his thoughts, his wishes, his complaints, his desires in writing; and, unless that writing be legible and easily read, with the letters well formed, so that a person can read that writing without trouble and decay, it fails by disgusting the person to whom it is addressed." It does not, however, require the authority of a renowned and eloquent statesman to inform us or to assure us of the ever-increasing employment and importance of the caligraphic art. There is no occupation or rank in life into which as a potent factor, as an energising influence, writing does not enter. Whether in the diary and correspondence of the private individual, the recording of the business transactions of the merchant, the literature of the author and scientist, the briefs of the barrister, or the manuscripts of the theologian and ecclesiastic, writing is alike everywhere paramount and universally potential.

But not only is it thus all-pervasive in every-day life throughout the civilised world, it rises to even greater prominence and significance in the case of the hundreds and thousands who, as secretaries, copyists, or clerks, follow writing as their profession or business, and derive

from it their sole means of subsistence. Such individuals are employed the year round for from eight to sixteen hours daily exclusively in clerical work. It is, indeed, impossible to exaggerate the importance of an art which is pre-eminently the vital principle in the machinery of the Law, Civil Service, Commerce, Science, and individual as well as international communication.

If we inquire into the origin and development of handwriting, we find it had its birth in an age of semi-barbarism; that at first it consisted of the most inadequate, because the most imperfect, pictorial representations, which were gradually merged into a very crude hieroglyphic as the basis of an incipient alphabet. Subsequently this was modified still further, until ultimately it developed into an equally crude phonetic, the characters in which had little, if any, scientific meaning or relationship. From the ornate and laboured style of the mediæval period our present Italian style has been evolved; and, if we carefully trace this development through its manifold stages and variations, we shall discover that it and they have all been purely responsive to exclusively caligraphic or so-called artistic demands. Pursuing our investigation a step further, the fact is revealed that these caligraphic and artistic demands have been controlled and dictated, not by logical and scientific principles, but by capricious and often conflicting theories.

The writing, and not the writer, has invariably been the supreme consideration in the growth and perfecting of the art of penmanship. Such and such a style of writing was pronounced to be essential (the correct thing, in short), the dictum was accepted, the idea of an appeal was never entertained, and our victimised ancestry were doomed to bow, cringe, and twist under the system of bondage thus established. As to hygienic principles, these have never been associated, even in a remote degree, with the history of slanting writing, which up to quite recent years has reigned unrivalled and undisturbed in our midst.

Indeed, physiological requirements have not been recognised, much less urged—at any rate, not in England—until within the past few years; and, even at the present day, not one teacher in fifty would spontaneously admit any possible connexion between hygiene and handwriting, so defective is the state of education in this matter. That these hygiene principles and physiological requirements are, or should be, an integral part of any system of penmanship that is accepted by the nation, there cannot be the shadow of a doubt; but we may repeat emphatically that the existing style of oblique

or slant writing has been evolved and elaborated independent and in spite of every hygienic and physiological principle. It is not the less remarkable that, when the subject of school postures first engaged the attention of the medical faculty, the real root of the malady was never for one moment suspected, and that for so long a time it remained undiscovered. Possibly this was, after all, not unnatural, as the conception of an imperfection in the writing itself would be the last to strike the mind of the inquirer. Hence the various and contradictory conclusions that have been made. First, we were informed the instruction was at fault. Teachers were indifferent, or not sufficiently careful to inculcate correct postures; it only needed strict attention, efficient supervision, and constant care to remedy the evil. Time and experience, however, proved the contrary, and then came the crusade against desks and seats. The former were too sloping, or not sloping enough; the latter were too high or too low, and they were not adjustable; so we got both sliding seats and sliding desks. But, unfortunately, the malady remained, although the old desks had gone. The question of light next exercised the scrutiny of our experts, and bad light or unsuitable light was made the scapegoat. This theory was almost immediately exploded, and, the question being still unsolved, remained in abeyance for a brief space.

It is matter for sincere congratulation that subsequent research has proved more successful that all external and subordinate points have been finally disposed of, and that the "system of writing—of sloping writing"—is the sole subject of investigation. And we are highly gratified to learn that the consensus of opinion finds its expression in the almost unanimous declaration that the "slant" or "slope" of the writing is the undoubted cause of the unhealthy and abnormal postures so grievously complained of. For thirty years we have had abundant opportunity of observation and experiment, and we have no hesitation in giving an emphatic confirmation to the medical testimony just alluded to. No matter what pattern desks and seats are in use, or what the light may be, or what the nature of the instructions, whenever the children are required to write in the sloping style their postures will present every possible variety of distortion and abnormality.

I am glad to be able to quote from an article in the weekly *Austrian Hygiene*, edited by Dr. J. Daimer, Secretary of the Supreme Council of Health in Vienna, a reprint of which was kindly sent me by Professor A. Reuss, and translated by my friend, Dr. S. W. Carruthers.

"The question of school benches was considered as

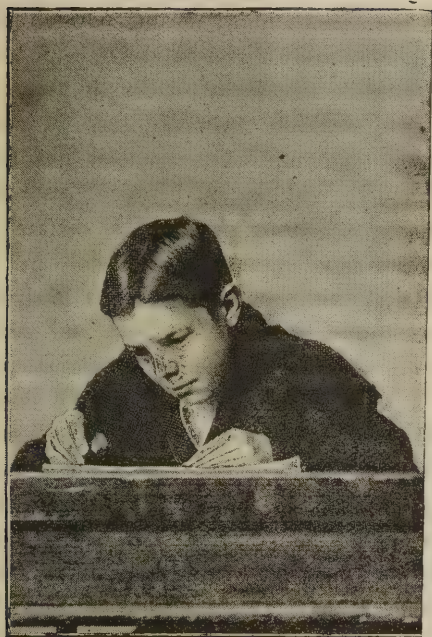
solved by a correct proportioning to the size of the body, by the introduction of a minimum distance, and the application of so-called back-seats. The question proved unsolved. Children sat upon the new benches, approved by the faculty, just as badly as upon the old."

The concurrent evidence of a combination of medical experts and specialists, from which there can be no appeal, warrants the assertion that the side position of the body is inevitable in sloping writing; that twisting of the neck is equally unavoidable; that distortion of the spine must accompany the side position; that displacement of the right shoulder is a necessary consequence of the arm being pressed close in to the side; that the wrist must be deflected from the natural direction in order to maintain the required slope of the pen; that the side position of the body involves a disturbance of the common action of the two eyes, and that the oblique view thus obtained is more or less delusive; that the sprawling on or over the desks causing pressure on the chest is induced, if not also required, by the general posture imposed by the slanting writing. We will epitomise the directions given in our own young days, and still prevalent amongst many of the present generation of teachers, to a writing class.

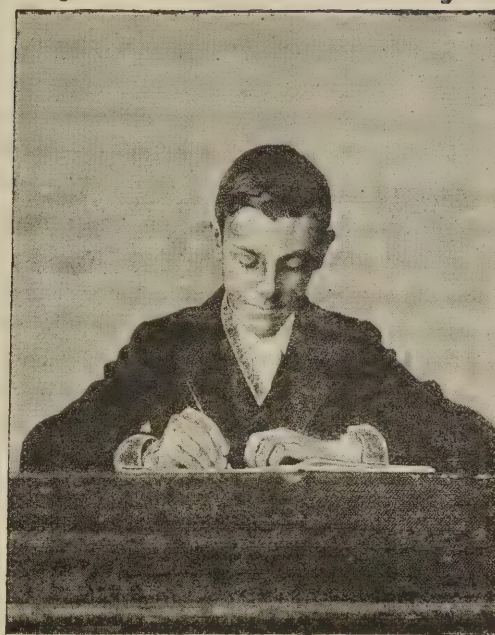
1. Turn your left side to the Desks.*
2. Press the left arm close in to the side.
3. Place your left hand on the copy-book.
4. Press your right elbow in to the side.
5. Point your pen towards your right ear.
6. Turn your face towards the book.
7. Grasp the pen firmly, and go on writing.

One involuntarily exclaims, What can be expected from a mode of writing that inflicts such conditions, such contortions as these? The reply is, From the writing our expectations end in disappointment and acknowledged failure, since not twenty out of a hundred specimens of penmanship promiscuously taken are fit to be classed as excellent; and from the ranks of the writers we obtain a vast number of debilitated and deformed victims so seriously afflicted in heart, lungs, spine, or eyes, as to create a feeling of apprehension and alarm in medical and educational circles, yea, even in councils and cabinets. Eminent medical gentlemen have pursued their investigations into the question of postures with praiseworthy ability and exemplary patience. Whilst teachers have been, as a class, wholly quiescent, such men as Barnard, Cohn, Coindet, Carpenter, Carter, Guillaume, Leibreich, Von Reuss, Lorenz, Smith, and a

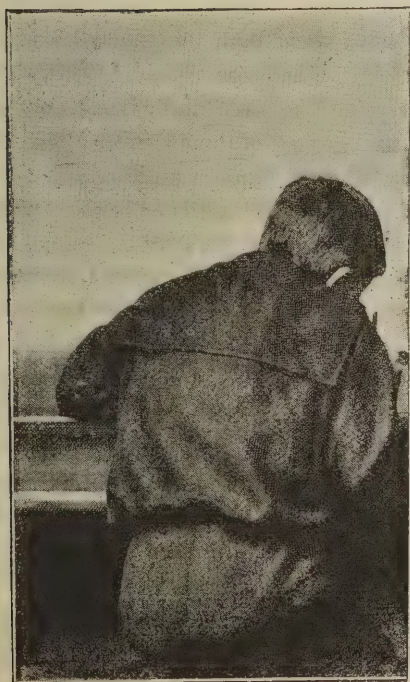
* See illustration for comparison of postures demanded by both styles of writing severally.



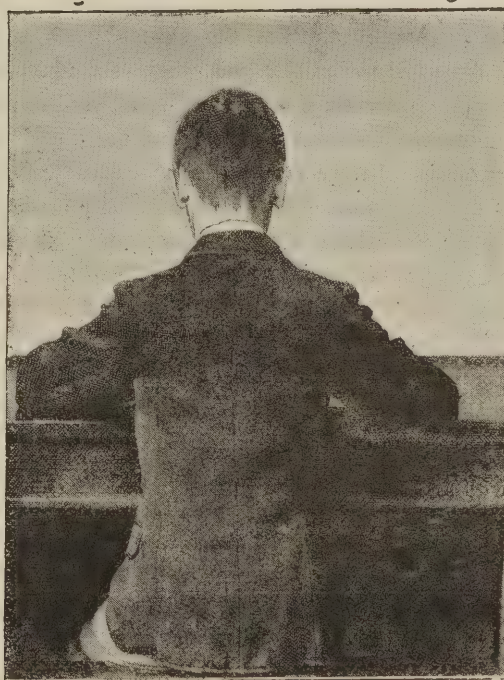
POSITION IN SLOPING WRITING.
(Front View.)



POSITION IN VERTICAL WRITING.
(Front View.)



TWISTED POSITION REQUIRED AND TAUGHT
IN SLOPING WRITING.
(Back View.)



NATURAL POSITION REQUIRED AND TAUGHT
IN VERTICAL WRITING.
(Back View.)

host of others, have been indefatigably working, with the outcome of an unanimous pronouncement that all the ills which initiated the inquiry are traced to the postures assumed in and required by the "slanting writing" taught in our schools. One writer tells us that "the postures of young people assumed in the sloping writing are one of the chief factors in the production of spinal curvature." A second authority declares these postures to be, "without doubt, recognisable as one of the most frequent causes of crooked growth."

Were this the only effect it would be more than sufficient to justify a thorough investigation into the whole question; but when equally dismal testimony is borne to the injury of other organs, and the interference with other functions, the urgency of the case becomes vital and irresistible. I am not acquainted with any work that so fully exhausts this part of our question as the Reports of Drs. Reuss and Lorenz already alluded to.

The great specific for these abnormal postures with their train of disastrous consequences, is "vertical writing." The material difference between this upright or perpendicular style and slanting writing is in the direction of the down strokes of the letters: in the former being definitely and absolutely upright, in the latter indefinitely and variously sloped or oblique. The difference which this slight and seemingly insignificant alteration in the down strokes makes, the effect which it exerts upon the writer, is incredible, and when in conjunction with the minor characteristics of the system, viz., shorter loops, minimum thickness and continuity, the results are almost magical. Before detailing the several hygienic merits of upright penmanship, I would make grateful reference to some of the professional statements given in favour of vertical writing. I say grateful reference, for to a teacher who has written the style and advocated its manifold claims to superiority for so many years, who has been met with derision and indifference, with incredulity and opposition, from almost overwhelming columns of prejudiced "slopers"—it is more than solacing to receive the repeated, the unanimous, and the independent support of a phalanx of medical professors as invincible as it is incontestible. These experts (and in their own department they constitute our only qualified judges) declare that "vertical writing is the only system consistent with all hygienic principles," that "it is impossible for writer to avoid twisting the spine unless they adopt an upright style of caligraphy," that "the absolute superiority of this method of writing over other methods must be recognised," and that "upright writing is very much to be preferred to oblique writing."

Now, what are the postures, or what is the position, prescribed in the vertical writing? In one word, it is the natural position, the most normal position possible; indeed, it is the posture that a pupil will instinctively assume, the attitude that he will naturally adopt, in the effort to write vertically. Granted that the book lies evenly on the desk, and that the scholar has been duly instructed how to hold his pen between the thumb and two forefingers, the writer's position is dictated by the style of writing adopted, and he sits evenly and straight before his desk, with both arms thrown freely thereon, the whole posture being the simplest and easiest that could be prescribed for the efficient performance of the work to be done. The eye looks straight down upon his task, the hand, wrist, and arm are in the best posture for a running handwriting, the body is not distressed by artificial posing, the spine rests in a perfectly normal condition, the chest remains unrestrained by any undue leaning forward, and the writing is produced under the most favourable hygienic conditions with the least expenditure of energy, and, therefore, with the minimum amount of weariness (see frontispiece).

Instead of the oblique position, we have the square or front posture; instead of the head all awry, we have a straight pose, securing an identity or parallelism of the facial and chest planes; instead of the elbows close in to the side, we have them both unrestricted and free; in place of the oblique and consequently delusive view of the book, we secure an even and perfect command of the writing; and instead of the awkward sprawl over the desk, we have the nearly upright position, free from even the tendency toward an unhealthy or painful attitude. It may be safely predicated that since all unnatural positions are precluded from the system, and that only the most natural and easy postures are demanded by it, vertical writing in this relation may be accepted as strictly fulfilling every hygienic requirement. Moreover, from an educational point of view, vertical writing asserts its hygienic superiority, if we contemplate its simplicity and the resulting diminution of labour in teaching and acquiring the art. This economy I have frequently demonstrated as amounting to from 30 to 50 per cent. Also, when we take account the advantages it offers us in legibility and speed (in both of which respects it is far ahead of sloping writing), thus securing an immense saving of time and energy in its production and perusal, we are driven to the conclusion that upright penmanship is the true penmanship, the *Ultima Thule* of caligraphic ambition, giving us the maximum of hygienic merits with no detracting disadvantages.

A word as to the actual achievements of vertical writing recorded in the evidence of numerous teachers in all grades of schools where it has superseded the old Italian style. And, let it be remembered, this test of experience is the crucial test which will once for all, and which has once for all, determined the correctness and soundness of theoretical medical experiments and deductions, and of our own educational categorical statements.

We are enabled to say the evidence is uniform and undisturbed by a single conflicting dissentient. Scores and hundreds of contributions of this kind have been received, yielding a magnificent variety of testimony bearing upon every possible question in the controversy. Briefly summarised, the evidence goes to show that wherever the vertical writing has been introduced, it—(a) enkindles a greater interest in the art, both with teachers and children; (b), it entails much less labour in teaching; (c), it wonderfully accelerates the rate of progress and improvement; (d), it attains to a much higher standard of excellence, and develops a much greater demand over the pen; (e), it materially increases the speed of writing; and (f), lastly, it disposes finally and satisfactorily of the awkward and painful postures that have, under the *régime* of sloping writing, created such havoc in, and worked such irreparable mischief to, the juvenile constituency for so many years. Encouraged by these unquestionable facts, by the harmony and concurrence of both medical and educational evidence, and the more than commensurate results which have attended its introduction and adoption, one can surely be justified in believing that the day is not far distant when upright penmanship shall have the pre-eminence, and when (the relation and inseparable connexion of hygiene and vertical writing being universally recognised) it shall not need the protest of a faculty or the dictum of a council to make our people a nation of vertical writers, but all shall write vertically in every department of our great empire.

[The foregoing article contains the substance of a paper read by Mr. John Jackson before the International Congress of Hygiene. After it had been read, the following resolution, moved by Dr. Kotelmann and seconded by Dr. Gladstone, Vice-Chairman of the London School Board, was put to the meeting and carried:—

“That as the hygienic advantages of vertical writing have been clearly demonstrated and established, both by medical investigation and practical experiment, and that by its adoption the injurious postures, so productive of spinal curvature and short sight, are to a very great extent avoided, it is hereby recommended that upright penmanship be introduced and generally taught in our elementary and secondary schools.”—Ed. HYGIENE.]

REVIEWS AND NOTICES OF BOOKS.

The Action of Alcohol in the Human Body. By W. Valentine Bird, M.D. (Brighton: Edward North.)

In this sensibly written pamphlet, Dr. Bird combats the three common delusions:—1. That alcohol is a food. 2. That it is a generator of heat. 3. That it is a preventor of infection. These errors are so generally spread, and, at the same time, so mischievous in their tendency, that they cannot be too widely or frequently exposed.

As regards the first delusion, people do undoubtedly sometimes get stouter through partaking freely of alcoholic drinks, but the increase in bulk and weight is mainly due to the formation of fat, often to the deterioration of muscular tissue; and, further, this fat has a tendency to accumulate in the neighbourhood of the heart and other important organs, thus impairing their efficiency.

With respect to alcohol, considered erroneously as a generator of heat, how often one hears it said to a person going out of doors on a wintry day, “You must take something before you go to keep out the cold.” Now, the recorded experiences of many writers on cold climates is that alcohol does not generate heat; on the contrary, though it produces a temporary sensation of warmth, that condition soon passes off, and diminished temperature of the body is produced. Such was the experience of Dr. Nansen, the Arctic explorer, for instance, and he places reliance on cocoa and coffee as stimulants, and not on alcohol.

The third error is one apt to lead people into the dangerous belief, that by taking alcoholic beverages they are more secure than if they did without them, so that they perhaps run greater risks, actuated by this false sense of security, than they otherwise would.

The injurious effects of alcohol, taken in excessive quantity, are too well known for us to dwell upon them here; but we are not of those who would absolutely condemn the moderate use of beer, wine, or spirits. As an adjunct to food—as, so to speak, a dietetic adjunct, alcohol in either of these forms is often of evident value. It is the abuse, and not the use, which should be especially objected to, though we know that our teetotal friends look upon such an opinion as unorthodox. Unfortunately, moderate drinking is a difficult thing to define, and some people have odd ideas on the question, like the Scotch minister, who is said to have finished a harangue on drunkenness as follows:—“I’ve nae objection to a dram in the morning when ye get up, and

anither after breakfast to help ye begin the day, and one before dinner to gie ye an appetite, and anither afterwards to help digestion, and ye may take a dram or two in the afternoon, and one for a nightcap ; but dinna be always a dramming."

Dr. Bird reprints in his pamphlet the evidence given by the late Sir William Gull, Bart., M.D., before the Select Committee on Intemperance, in 1877. The opening sentence will show the tendency of Sir William's views:—"Alcohol has but a subordinate value, and that value is chiefly in its action on the nervous system as a sedative." There is one noticeable feature about Sir William Gull's statements, and that is that he does not denounce the lower class of society as furnishing the greatest number of sinners in respect of alcoholic excesses. "I am persuaded," he observes, "that lecturers should go about the country lecturing to people of the middle and upper classes upon the disadvantages of alcohol as it is daily used." One other quotation from Sir William before we close this notice:—"The public ought to know that of all the diluents or solvents for the nutritious parts of food, there is nothing like water. Water carries into the system the nutriment in its purest form."



MASSAGE.

THIS method of treatment has, unfortunately, been largely seized upon by quacks as affording a ready means of extracting money from the pockets of their victims, many thousands of whom must look back with anything but pleasurable feelings to the time when they allowed themselves to be duped by unscrupulous individuals advertising either themselves or so-called institutes or schools of massage.

There is a prevalent idea that massage is an ancient form of treatment, but this is erroneous. Rubbing and anointing with oil or ointments were, of course, commonly practised in olden times, but massage is more than is implied by such operations, for it consists of a series of movements classified and arranged in order to produce certain definite well-known physiological effects, while its combination with the induced electric current adds considerably to its remedial value.

Yet, rubbing alone—*i.e.*, friction of diseased parts with the palm of the hand—has from the earliest records of medicine been found efficacious in certain forms of disease ; and numerous passages could be quoted from the works of Hippocrates and other old writers in evidence of this fact. We have it on the authority of

Plutarch that Cæsar was in this way cured of general neuralgia ; and rubbing was greatly in vogue amongst the Romans. In connexion with this subject an amusing story is told of the Emperor Hadrian (who built the wall from the Solway Firth to the Tyne). One day, at the public baths, the Emperor noticed a veteran soldier rubbing his body against a marble pillar, and he inquired of the man why he did so? "Because I have no slave to rub me," said the veteran. The Emperor was so struck with the old soldier's answer that he made him a present of two slaves, with a sufficiency for their maintenance. Some few days afterwards, the report of the Emperor's munificence having been circulated, several old men, actuated by the hope of similar good fortune to that of the veteran, rubbed themselves against the wall of the public baths when the Emperor was paying his customary visit. The Emperor's attention was drawn to them, as they anticipated, but shrewdly guessing their object, the Emperor gave orders that they should be made to set to work to rub one another.

Massage has received much more attention from Continental physicians than from medical men in this country, but, properly employed, it will be found an excellent adjunct to other treatment in rheumatism, various muscular affections, want of tone of particular sets of muscles, &c.



THE FOOD AND COOKERY EXHIBITION,

HELD at the Portman Rooms last week, was equal, if not even superior, to any of the series, of which it constituted the seventh ; while the large and continuous crowd of visitors daily thronging the rooms fully attested to the popularity of the Exhibition. The first of these exhibitions was held at Willis's Rooms in 1885, under the direction of Mons. Pouard, *chef* to the Queen's Guard, St. James's Palace. Not only has the art of cookery received a considerable impulse from these exhibitions, but a large sum (£1500) has been raised and handed over to various hospitals and other charitable institutions, including £550 to the French Hospital, and £400 to the Charing Cross Hospital.

The artistic and other exhibits connected with cookery, confectionery, and the like branches of the culinary art, amounted to some hundreds ; while the trade exhibits comprised first-rate specimens of food, drinks, and condiments. But excellent as these exhibits—these set dishes, so to speak—were, they were supplemented by constantly varying attractions in the numerous cooking competitions, which, further, adopting gastronomic terms,

might be styled the *entrées* and *hors d'œuvres* of the Exhibition. The Army School of Cookery sent a strong contingent of military cooks, who demonstrated how three good meals could be provided per diem for 8½d.; men cooks from the Navy showed their deftness in bread-making; and the Volunteer Service cooks gave object-lessons in the preparation of a day's camp meals for a company of thirty men. Every afternoon, squads—by no means awkward ones, though—of girls and boys from different Board schools in the metropolis delighted the spectators by the quiet, business-like way in which they performed feats in domestic cookery, each school competitor preparing and cooking the particular dish for which he or she had drawn the name by lot, in so creditable a manner, that the judges must have been somewhat perplexed in giving their awards.

The prizes given to successful exhibitors and competitors were numerous, including gold, silver, and bronze medals, diplomas of honour, and certificates of merit. In the children's competitions books were distributed to the winners, some of the literature being in the useful shape of Post Office Savings' Bank books with a neat amount entered in, to encourage the youthful winner in thrift and perseverance. Before proceeding to mention some of the principal exhibits, we should state that every one concerned in carrying out the Exhibition rendered gratuitous service. The President was Mr. W. Burdett-Coutts, M.P.; and Major Walter Wingfield and Mons. Eugene Pouard were the Vice-Presidents; the other chief officials—Mr. J. Roberts, Chairman of the Executive Committee; Mr. J. Edmunds, Vice-Chairman; Mr. J. Rope, Treasurer; Mr. H. A. Jones and Mr. E. G. Whitehead, Auditors; with the indefatigable Mr. C. H. Sam, Secretary. As for the Executive Committee, it might be described as a directory in miniature of the leading *chefs* in London. The Judges, amongst whom there were several ladies (an innovation on which we compliment the Committee), were well-known experts in culinary and dietetic matters.

The catalogue appropriately opens with a preface kindly written by the greatest living literary authority on gastronomy, Mr. George Augustus Sala, who discourses, in his inimitable, erudite, yet lively style, of cooks and cooking, of dainty dishes, as well as of nutritious and wholesome dietary, for people of limited means; of table decorations, of carving, and other cognate subjects. Speaking of carving, we find G. A. S. tripping—on most familiar ground, too. Thirty years or so ago, it was the custom at every high-class table for the host, assisted by more or less experienced guests (what friends those less

experienced amateurs were to the tailor or the dressmaker, through the too liberal manner in which they distributed the gravy, no pen can tell), to carve the joints, poultry, and game at the table: *nous avons changé tout cela*, and the delicate and difficult process is now conducted at a side table; so that, as Mr. G. A. Sala somewhat regretfully observes, we “must be content with pieces of we know not what, pushed over our shoulders by the hands of we know not whom,” instead of seeing before us the grand sirloin, the stately turkey, and other solid triumphs of the cook's art.

Mr. Sala tells readers of his interesting preface that, in the first volume of the *Cornhill Magazine*, published a little more thirty years ago, they will find “a wonderful drawing in outline, by the late Richard Doyle, representing a grand dinner party of the period,” and depicting the host as carving. Now, we happen to be almost as well acquainted with this first volume of the *Cornhill* as Mr. Sala himself, for is it not therein and the succeeding volume that we first read—month by month, as the yellow-covered periodical made its appearance—Sala's graphic description of the life and contemporaneous history of England's famous artist, “William Hogarth, Painter, Engraver, and Philosopher?” On reaching home after reading this reference in Mr. Sala's preface, we took the well-worn Vol. I. of the *Cornhill* down from its place on our book-shelves, feeling an inward conviction that, for once, Mr. Sala was wrong; and our surmise turned out to be correct. We did not find the drawing he mentions. Will he forgive our pointing out this trifling error, seeing that it has afforded us the opportunity of gratefully thanking him for the many pleasant hours which his facile pen has afforded us?

Amongst the special prizes presented, in addition to those given by the Universal Cookery and Food Association, were seven gold medals by the Worshipful Company of Cooks, in the artistic, confectionery, and housewife's classes; a gold medal by the Baroness Burdett-Coutts (who has been the principal patroness of these exhibitions from their commencement); and one by Sir Daniel Cooper, besides numerous silver medals and other prizes given by various other friends. It would be impracticable in the limited space at our disposal to name more than some of the successful competitors.

In the artistic cookery section, gold medals were awarded to Messrs. Philip E. Colon, T. Wirz, and A. Spaccatroni. For the best laid tables the chief prizes went to Messrs. F. and C. Osler, the International Hotel Employés' Society, and Cosenza & Co., whose tastily arranged tea-table won the special admiration of all the

ladies. In this section, too, we must not omit to mention a very deserving exhibit of a table completely laid for an artisan's meal (shown by Mrs. Grace Johnson), combining neatness and attractiveness with economy. Cosenza & Co. also came to the front in the classes devoted to high-class confectionery and preserved food. We noticed at their stall some wonderful pilchards in oil, and truffles, as well as several preparations of chicken, &c., which latter can be strongly recommended for the use of invalids. Mr. Knorr, of Heilbronn, Germany, took a gold medal for his excellent exhibits of dried vegetables and ready-prepared soups. The show of sauces was above the average; and we may specially mention Messrs. Hutt & Co.'s Whaddon Chase Hunt sauce, Stretton & Co.'s Worcestershire sauce, and Sutton & Co.'s sauces and flavouring essences. In this class was also shown Tomlinson & Hayward's celebrated gravy colouring. Mons. Escoffier, *chef* to the Savoy Hotel, exhibited good samples of sterilised milk and milk-flour.

In the division for uncooked food the chief honours fell to Mr. Harry Peck (for cheese, hams, potted meats, &c.), Mr. Lusty (live turtle and turtle preparations), and Scott's Restaurant (oysters and fish).

Beverages were well displayed by Messrs. Daish & Co., whose Scotch whisky was pronounced unsurpassable in purity, strength, and flavour; Messrs. Gaymer & Son, whose Norfolk cider had previously taken the gold medal of the Association, and is highly appreciated by connoisseurs; while the Camwal mineral waters (Camwal being a short way of rendering the Chemists' Aerated Mineral Waters Association, Limited, obtained a gold medal for their mineral waters and syrups. Seeing what inferior stuff is often foisted on purchasers, under the name of soda water, potass water, &c., to the particular detriment of invalids and others requiring mineral water of a definite standard, it is important to note that the Camwal syphons and bottles have marked upon each the number of grains of the bicarbonate of soda, potass, or other principal ingredient to the half pint—an excellent plan which is not followed, so far as we know, by any other firm manufacturing mineral waters. In connexion with the subject of bottling we desire to draw attention to the patent syphon exhibited by the Glass-lined Syphon Company; the great advantage of which is that as the syphons are lined throughout with glass, they are non-poisonous and non-corrosive, thus obviating any possibility of metallic contamination to the fluids when poured out.

As samples of various cereals, preserved foods, meat-extracts, and other exhibits, forwarded to us for inde-

pendent examination, have reached our laboratory too late for analysis, we must defer the remainder of our Exhibition Report until a subsequent issue.

NEWS AND NOTES.

A Hygienic and Ambulance Exhibition is proposed to be held next year in Woodhouse Park, about two miles from the Marble Arch. Should sufficient support be obtained for the scheme, the promoters intend to devote any profits among the London hospitals.

The Importations of Fresh Meat from Iceland indicate a new and unanticipated source of supply. During the past summer more than 30,000 sheep from Iceland have been landed at Newcastle-on-Tyne, where they found a ready market.

Bath.—It is proposed to carry out a very extensive scheme of sewerage interception and sewage disposal for this city at a probable cost of £75,000. The polluted condition of the Avon has become so notorious that prompt steps must be taken in the interests of public health.

Ashton-under-Lyne.—The local board have decided to apply to the Local Government Board for sanction to raise £45,000, for the purpose of purchasing land for a sewage farm, and for the construction of the requisite sewerage works.

Houses for the Working Classes.—The London County Council have come to the conclusion to erect working men's homes, to accommodate 3,700 persons, on ten acres of the land formerly occupied by Millbank prison in Westminster.

West Hartlepool is threatened with a water famine, owing to the long drought, no rain having fallen for many weeks; and the Water Company have found it necessary to cut off all water supply for manufacturing purposes. The consequence has been that all the large works have been brought to a standstill, and thousands of workpeople have been thrown into compulsory idleness.

Joined the Majority.—This phrase, expressive of death, is not, as many people would think, of modern coinage. It is the English translation of a Latin expression, which was in its turn borrowed from the Greek language. At the concluding part of his essay on Mirabeau, Carlyle wrote:—"This Mirabeau's work then is done. He sleeps with the primeval giants. He has gone over to the majority. '*Abiit ad plures*.'" Two hundred years ago Sir Thomas Browne, M.D., made use of a similar expression in the preface to his book on *Urn Burial*.

The Deadly Trades in which Women are Employed formed the subject of a lecture delivered at the Liberal Club,

North Kensington, by Mrs. Charles Mallett, the President of the North Kensington Women's Liberal Association. Mrs. Mallett dealt more particularly with the manufactures of white lead and of matches, in which the common white phosphorus is used instead of the innocuous red phosphorus. We have recently published special articles (HYGIENE for June 9th and 16th) upon 'Diseases incidental to Workpeople in Chemical and other Industries,' pointing out the dangers arising to all—both women and men—engaged in such manufactures, and indicating the methods by which they might be rendered comparatively or completely harmless. We gladly welcome the co-operation of Mrs. Mallett and others, in directing public attention to the amount of unnecessary suffering inflicted on workpeople engaged in these trades.

**

Water Supply from Local Wells.—In his lecture on Water Supply, recently delivered at the Sanitary Institute, Mr. J. Wallace Peggs, A.M.I.C.E., mentioned a singular circumstance which came under his knowledge. A suburban district had its water supply from wells attached to most of the houses. The local authority sank a well 400 feet deep, and soon a curious and unexpected chain of events occurred. One by one the old shallow wells were emptied, their contents going to fill the new well, and subsequently they became in turn filled with the liquid contents attracted from the adjacent cesspools, on the principle that Nature abhors a vacuum. Next, the new deep well became poisoned through the suction from the shallow wells, and it was not until a proper system of sewerage had been carried out that the deep well could be utilised.

**

The Office of Coroner, which is one of the oldest judicial appointments in England, has long been placed in a disadvantageous position by the places and manner in which inquests are held (to save expenses) and by the absurdly low payments—practically *nil*—made for the services of jurymen and the attendance of witnesses. No duties, however ancient and honourable, can be carried out efficiently, without a proper amount of expenditure. Coroners are a very useful body of minor judges, and their status should be suitably upheld. The County Councils, in whom the appointment of coroners is now vested, have made matters worse instead of better, by cutting the expenses down below the limits of fairness. We are informed that one coroner, Mr. J. E. Atter, who has held office for a considerable period at Stamford, Lincolnshire, has sent in his resignation, as a protest against the County Council's still further reducing the allowances to witnesses.

**

The Sanitary Institute.—The following lectures on the Sanitation of Industries and Occupations have been arranged for:—Occupation and Mortality, by Dr. Arthur Newsholme, Nov. 2nd; Mineral (non-metallic) Dusts, the Manufacture of Pottery, &c., by Dr. J. T. Arlidge, Nov. 16th; Metallic Dusts, Cutlery, Tool-making, and other Metal Trades, by

Dr. Sinclair White, Nov. 23rd; Textile Manufactures, Silk, Cotton, Woollen and Linen Industries, by Dr. J. T. Arlidge, Nov. 30th; Metallic Poisons, Lead, and Arsenic, by Prof. T. Oliver, Dec. 8th; Manufacture of Alkalies and Acids, by Prof. Watson-Smith, Dec. 14th.

**

A Noxious Trade Stopped.—At Greenwich Police Court, last Monday, James Judd, carrying on the business of a manure manufacturer, in a railway arch at Rotherhithe, was summoned by the London County Council for not adopting necessary precautions, and not employing such means as were requisite for causing all offensive vapours or gases arising from animal matter to be passed into or through a furnace fire, or to be so condensed as to be effectually destroyed. Evidence was given that the defendant conducted his business so carelessly that noxious and most offensive effluvia were given off, many of the men he employed having to leave through illness caused by the bad smells; previous convictions were also proved. On the other hand the defendant endeavoured to show that no offensive odour had been noticed. The magistrate decided that an intolerable nuisance had been created, and ordered the business to be discontinued; he also ordered that the defendant should pay three guineas for costs of the prosecution.

**

A Gross Miscarriage of Justice.—The so-called Indian oculists, a gang of ignorant pretenders to surgical knowledge, whose case has just been tried at the Old Bailey, have been acquitted, owing to the inadequate condition of the law. The prosecution was conducted at the instance and expense of the London and County Medical Protection Society, and we hope that an ample subscription will be raised to defray the costs of the prosecution. The General Medical Council should have undertaken the prosecution; and we trust that they will take cognisance of future similar cases of malpractices, and also get the law amended so as to reach such gross offenders. A curious circumstance was brought out in the course of the trial, namely, that some documents which these men represented to their unfortunate deluded dupes to be licences to practice in India were passports from the Indian Government stating that they were 'proceeding to Europe to cure eye diseases!' It was stated that it was not an unusual thing to give such passports. The sooner this inducement for quacks to exploit England is withdrawn the better it will be for the public health.

**

A Step in the Right Direction.—The first complete transaction under the Small Holdings Act has taken place at Spalding, where the County Council for the Holland division of Lincolnshire met fifty applicants for land which had been purchased for the purpose of forming small holdings. Thirty-one of the applicants were provided for—twenty having two-acre plots allotted to them, ten three acres each, and one as much as fifteen acres. The rents charged

were high, as agricultural holdings now go, being at the rate of 40s. and 42s. per acre; and as the rents will fully balance the expenses incurred, no charge will fall on the ratepayers.

Opium.—Some idea of the universality of the use of opium in the central part of China may be derived from the fact that it is made a medium of exchange, owing to its being in such general demand. Further, opium is light and portable, and capable of small subdivision.

ANSWERS TO CORRESPONDENTS.

Patent alias Quack Medicines.—We are constantly receiving letters from correspondents in all classes of society expressing their thanks to us for exposing the imposture of quack remedies. While we have but done our duty, we naturally feel gratified at such expressions of approval,—the more so, as we have attempted a task upon which none of our contemporaries have ever systematically entered. A clergyman with a country living (Warwickshire) writes to say that, although his parish is but thinly populated, he has known several cases of quack medicines being used “in vain, of course, by very poor people, utterly unable to afford to be swindled in such a way; and I have no doubt that every clergyman could tell a similar tale. I feel sure that we all owe you many thanks for so fearlessly denouncing imposture, and I am sure that much good must come from your efforts.” To which we fervently add “So mote it be!” Our correspondent goes on to suggest that we should have a reprint in a cheap book form; and he is good enough even to suggest a title, viz.: “Quacks in the Pillory.” We have much pleasure in stating for his information and for that of others who have written on the same matter, that our publishers propose to bring out a small, handy, cheap volume, such as is suggested, before the end of this year, and we trust, both that we may count upon the active support of all haters of shams and impostures, and that, as our clerical friend remarks, the circulation of the reprint will “help to stop the widespread system of home-drugging, responsible for many deaths.”

M. O. H. (Somerset).—The D.P.H. degree, Cambridge.

D. S. M.—There are many varieties of the Eucalyptus, but the product of only a few of these finds its way to this country.

Mr. Parker.—Sewer gas necessarily varies much in its composition, but it contains, to a greater or less extent, sulphuretted hydrogen, carburetted hydrogen, ammonium sulphide, carbonic acid, and ammonia.

Mrs. Lewis.—Carefully avoid the quack crew. Your ailment is one which any qualified medical practitioner would soon set right.

W. S. (Portsmouth).—Typhoid and enteric fever are the same disease, just as scarlatina and scarlet fever are identical with each other. The former name, typhoid, was given in consequence of its presenting some points of similarity to typhus; “enteric” is the term applied, owing to the intestines being the part attacked.

Cui Bono?—We will content ourselves with echoing our anonymous correspondent’s signature as the best answer to his illogical query.

H. B. (Chatham).—See article on School Hygiene, in *HYGIENE*, Vol. VII., Nos. 17 and 18.

Sir Henry Thompson is thanked for his communication.

Mr. Blacker.—Your verses are to the point and convey much truth; but we cannot insert them. Our articles on Patent Medicines are written without animus against any individual; if we published your verses it would be assumed that we were influenced by personal spite.

L. G.—The Liernur sewerage system was invented by Captain Liernur. It was less favourably received by sanitary authorities elsewhere than in Holland (the inventor’s native country), where it was introduced into Amsterdam, with a population of more than 300,000, and Leyden, another populous town, chiefly through the recommendation of Dr. L. J. Egeling, Government Medical Inspector for the province of South Holland.

F. R. (Met. Soc.).—The most reliable anemometers we have seen are those manufactured by Messrs. Stanley & Co., Westminster.

A Student.—Dr. Edward Jenner, the discoverer of vaccination, was a native of Berkeley in Gloucestershire. He was born on May 17th, 1749, and died on January 26th, 1823, in the 74th year of his age.

M. D. (Montreal, Canada).—You would find it best to subscribe, so as to have *HYGIENE* sent direct from the publishing office.

EDITORIAL AND PUBLISHING NOTICES.

EDITORIAL.—The Editor begs to express his thanks to numerous correspondents, and to state that he will be pleased to receive any articles or correspondence coming within the scope of *HYGIENE*, books or pamphlets for review, reports of medical officers of health, items of general or local sanitary interest, newspapers (marked at the part to which it is desired to draw attention), &c.

ADVERTISERS are requested to bear in mind the greatly increased circulation of *HYGIENE*, with its weekly issue and reduced price. In addition to the large regular circulation, many thousands of copies are distributed annually to sanitary officials, medical men, private addresses, public libraries, clubs, hotels, &c.

HYGIENE,

A SANITARY PAPER.

VOL. VII.]

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SANITATION AS TAUGHT BY THE MOSAIC LAW.*

By the REV. DR. ADLER, CHIEF RABBI.

I ESTEEM it a high privilege to have been asked by your Association to read a paper before you. The theme I have chosen, "Sanitation as taught by the Mosaic Law," is a very large one, and much too comprehensive to be treated exhaustively within the compass of a brief hour. I am indeed tempted to apply the words of Shakespeare to this high subject with all its manifold bearings.

"Were the whole frame here,
It is of such a spacious lofty pitch,
Your roof were not sufficient to contain it."

But I am aware that some portions of my subject have already been touched upon in former papers, those read by your esteemed Honorary Secretary, by Sir Benjamin Richardson, and by Mr. Ernest Hart. With those departments of my theme I, therefore, propose to deal but briefly, but shall dwell with greater length on those portions where tradition steps in to explain, to enlarge, and to work out hints and indications given in the sacred Scriptures. I shall, therefore, expatiate somewhat on our dietary code, more especially on our mode of slaughtering animals, a matter to which considerable publicity has recently been given.

Permit me to observe, at the outset, that, in founding this Church of England Sanitary Association, you have acted in full accord both with the spirit and the letter of the Bible. It is a great mistake to suppose that religion concerns itself exclusively with the intellectual, moral

and spiritual nature of man, and that its single purpose is to obtain salvation for the soul hereafter. This is not the teaching conveyed in the Scriptures that are sacred alike to Christian and to Hebrew. If you will refer to the Old Testament you will find that it does not merely contain precepts for the safe-guarding of the invisible yet the most important part of our being, but also rules for the effective care of the perishable casket in which God has seen fit for a time to enshrine our soul. The Hebrew Scriptures contain full and minute directions with respect to our mortal body, that "harp with a thousand strings," so wonderfully and fearfully made. Regulations how to preserve and increase its health, augment its vigour, and prolong its existence; methods of alleviating and repelling the pangs of disease and death, so that we may say, touching those precepts, in the words of the wise king that "they are life unto them that find them, and health to all their flesh."

The question has been asked, Is it recorded anywhere in the Pentateuch that its precepts were intended to exercise a sanitary influence? In answer hereto, I would cite the text (Exodus xv. 26): "And He said, if thou wilt diligently hearken to the voice of the Lord, thy God, and wilt do that which is right in His sight, will give ear to His commandments, and keep all His statutes, I will put none of these diseases upon thee, which I have brought upon the Egyptians: for I am the Lord that healeth thee." Reference is here made not merely to the plagues with which the Egyptians had been recently visited, but to certain diseases that prevailed among the Egyptians, and to those peculiar and fearful epidemics which occasionally rage in that country.

* A paper read before the Church of England Sanitary Association at the Church House, Westminster, on November 1st, 1893.

In a remarkable lecture delivered by Sir Benjamin Richardson a few years ago to our working men, on the Mosaic Sanitary Code and its effect on the Jewish race, he views all the commandments of the Decalogue as hygienic provisions, all having reference to the rule and governance of the passions, without which governance life is embittered, degraded and shortened. Whilst admitting that many a sound argument may be advanced in favour of this position, I would aver that no ingenuity whatever is needed to affirm the sanitary value of the fourth commandment, which enjoins the observance of the Sabbath. Science has demonstrated, that if the body and mind of man are to retain their health and vigour to old age, they must not be permitted to toil for more than six days in the week. And a famous physician has declared that he never knew a man to work seven days in the week who did not kill himself or his mind.

I need not stay to point out with what emphasis personal cleanliness was insisted upon. In Exodus, xix. 10, Moses was commissioned before the Divine manifestation on Sinai took place, "to sanctify the people to-day and to-morrow, and let them wash their clothes," thus indicating how intimately bodily purification was to be conjoined with spiritual preparation. Entire chapters in the Books of Leviticus and Numbers are devoted to the subject of the cleansing of the person and of clothing. In one chapter (Leviticus, xv.) the injunction, "He shall wash his clothes and bathe himself in water," is repeated no less than ten times. The importance that was attached to the cleanliness of the hands may be judged from the frequency with which it is used as a poetic metaphor. I will wash my hands in innocency: so will I compass Thine altar, O Lord," exclaims David in Psalm xxvi. 6. "And he that hath clean hands shall be stronger and stronger," says Job (chapter xvii. 9). It was therefore in harmony with the Biblical injunction that the Rabbins required a careful washing of the hands before partaking of a meal—an obligation which, as Dr. de Mussey suggests in his "*Etude sur l'hygiène de Moïse et des anciens Israelites*," was evidently inspired by the thought that noxious particles might adhere to the hands and penetrate with the food to the digestive tract, this precept being the more important, as at that epoch, as now among the Arabs, the hands were used at meals, just as we read in the description of the Last Supper, "of him that dippeth his hand with me in the dish."

It may be within your remembrance that some years ago there arose a discussion in the columns of the *Times* newspaper as to the origin of the proverb, "Cleanliness is next to godliness." Many conjectures were hazarded

on the subject, until one correspondent rightly suggested that the maxim was derived from the dictum which occurs at the conclusion of the Misna of the treatise Sota, which literally rendered, signifies, "Outward cleanliness leads us to inward purity."

You may ask, how it is that with these manifold laws inculcating ablutions and purification, some of my foreign fellow-religionists fall so grievously short of the standard set up by our faith. To this I am compelled to reply that they have permitted themselves only too readily to copy and imitate some of the evil manners and customs of the nations amongst whom their lot was cast. And how flagrantly Russians and Poles sin in the matter of cleanliness may be learned from a chapter in Lanin's *Russian Characteristics* with its appalling revelations. He cites the *Novoye Vremya* as saying, that "an affection for dirt is a Pan-Russian characteristic."

Passing on the subject of public hygiene, I would first claim your attention to the remarkable law enjoined in Deuteronomy, xxiii. 12-13, which provides that the excreta should be covered by earth—a method which the Rev. F. Lawrence, in his valuable paper on "The Church and Bodily Health," has justly described as being acknowledged in these enlightened days as the most salutary known.

When we come to the subject of diseases, the noteworthy fact presses itself upon us, that the laws of the Pentateuch do not follow the ancient therapeutical or curative system, but that they substitute for it the method that is now regarded as truly wise and philosophic, the method of prevention. The health code of the Pentateuch contain laws for the prevention, arrest, and ultimate stamping out of that class of ailments which have most afflicted mankind in all ages, viz., contagious diseases. The only infectious disease known in those days seems to have been that of leprosy, though I admit that this subject is still shrouded in much obscurity. The precautions ordered for that dread malady comprise complete isolation of the sick from his family, friends, and the general community till the disease had disappeared, a thorough purification of the patient when recovering before re-entering the camp, a second period of quarantine, and a destruction of his clothes and other effects. It is now recognised by some of the highest medical authorities in the land, that if this plan were followed at the present day, the special diseases of our times, small-pox, scarlet fever, and especially typhus, the sad outcome of filth and overcrowding, would speedily disappear, or at least become ultimately so rare, that they would be relegated to the happy limbo of curious maladies.

Considerable obscurity also prevails concerning the exact nature of the leprosy of houses spoken of in the fourteenth chapter of Leviticus. There is an instructive note on the subject, contributed by the late Dr. John Sutherland, of the General Board of Health, to a sermon preached in the Manchester Cathedral by the Rev. Charles Richson. The thesis which the preacher defends is that the observance of the sanitary laws divinely appointed in the Old Testament Scriptures, is sufficient to ward off preventible diseases from Christians as well as Israelites. Dr. Sutherland observes that the treatment prescribed for the leprosy of a house is a remarkable instance of the union of religious rites with sound sanitary practice. "When a house has been built in a locality where the air is constantly moist and loaded with putrescent matter, or where a house has been overcrowded and inhabited an undue length of time without the walls having been cleansed, the plaster becomes saturated with damp and with organic matter proceeding from moisture of the breath, &c., which is loaded with such matter. Whenever this takes place the house becomes unhealthy, and the colour of the walls become changed. A greenish or reddish tint, apparently arising from the growth of minute lichens or fungi, appears in various places, and it is in houses with walls in this condition that cholera and other epidemics usually select their earliest victims. In cases where the mischief had once spread, it was sufficient that the portions of the walls on which the spots had appeared should be removed, the whole interior was to be scraped, and the dust to be carried out of the city, and the stones were to be replaced and the house fresh plastered." But if the plague had spread in the house, then the priest, the sanitary officer of those days, was to break down the house, the stones of it and the timber thereof, and all the mortar of the house. A weighty admonition this—how to deal with the rotten tenements that still disgrace this city and country. A gigantic task, yet one which, thanks to the public spirit and generosity of a few noble-minded philanthropists, has already been commenced, a task which inspires the wisely directed action of the Mansion House Council on the Dwellings of the People, a problem which should engage the energetic efforts of the London and other County Councils—a work which must be accomplished in the near future with thoroughness and completeness, if England is to enjoy the only genuine national wealth—national health.

In addition to these enactments, there are contained in the Mosaic code other injunctions, the direct hygienic object of which medical authorities at all ages and of all

countries have readily recognised. The sanitary purpose of other laws may not be so obvious, but will become apparent to the diligent student. Thus Salvador in his *History of the Mosaic Institutions*, lays great stress upon the fact that the land laws of the Bible, calculated as they were to keep the Israelites as agriculturists, must at the same time have been intended to perpetuate a sturdy and robust race. Each family had a portion of the soil allotted to it which was inalienable, and which they were bound to cultivate with unceasing industry. And we know that, although the soil of Palestine was not in itself remarkably fertile, though some of the hills were by nature arid and rocky, yet these were so industriously tilled, terraces being dug from base to summit, and covered with rich soil, that it became a goodly land, flowing with milk and honey, a diamond in the desert, a palm grove islanded amid the waste, a beauteous inheritance among the nations. Salvador also regards the pilgrimages to the Holy City which had to take place on the three great festivals of the year, with the change of air, scene, and occupation which they necessitated, as being eminently calculated to exercise a beneficial effect on the mind and body of the indwellers of the Holy Land.

But I will now proceed to consider with greater detail the various precepts relating to food, which are held to be binding upon the Israelite, even though he no longer reside within the land of promise. I do not presume to say that the purpose of those various precepts was exclusively hygienic. One object of the code is declared to be the preservation of racial separateness. It is likewise beyond dispute that it was intended to serve a high *moral* purpose. The various prohibitions were to teach the Israelite by lessons continually repeated, calling on him to abstain from articles of food accounted dainties, that he must become lord of his will, that he must resist every sinful passion and overcome every unlawful desire, that he must

"Sit self-governed in the fiery prime
Of youth, obedient at the feet of law."

Entire self-control, the great ideal of perfect man and womanhood, may be viewed as the life and soul of these various commands. This fact is clearly indicated in a rabbinical text, which says, "There is scant merit in a man saying, I forbear from eating this or that, for my soul loathes it. The merit is if a man desires but refrains himself, saying, 'How dare I partake thereof, seeing that my Father in Heaven has forbidden me.' " It may, I think, be justly claimed, that obedience to these various injunctions during successive ages has contributed to render the

Hebrew frugal, sober, temperate, and moderate, so that, by common consent, he is remarkably free from a besetting vice of mankind, the indulgence in strong drink.

Yet, at the same time, it will be conceded that a distinctly sanitary purpose may also be discerned in many of these precepts. With regard to animals pronounced as unclean, you are aware that among quadrupeds all carnivora were prohibited, those being particularly liable to parasites. Among birds the raptorial were forbidden, most of these being, especially in warm countries, the natural scavengers which feed on garbage and carrion. The dangers that may result from the partaking of the flesh of animals suffering from a parasitic disease is especially apparent in the case of swine. It is only about thirty years ago that a new malady was discovered—the terrible disease of trichinosis which is induced by the ingestion of pork, in which these parasites have taken up their abode. In many cases the disease causes emaciation and wasting away; in some epidemics one-fifth—nay, even one-fourth—of the cases have proved fatal.

But even with respect to those animals, which are permitted for food, certain rules have to be observed before their flesh is permitted to be eaten. The animal has to be slaughtered in a mode carefully prescribed. It has to be deprived of life by the sweep of a long and perfectly sharp knife that has been ascertained to be free from every notch and flaw; this cut has to sever the trachea and œsophagus, the jugular veins and carotid arteries.

Objection has been raised to this process on the ground of its not being the most humane mode of depriving the animal of life—nay, as even being calculated to inflict unnecessary pain. You will, I hope, permit me to avail myself of this opportunity to rebut this grave charge, even if the consideration of this question does not fall entirely within the lines of the theme which I have selected. You will, I am sure, desire to be put in full possession of all the facts in relation to this controversy. There is one point to which you will signify your ready assent. There is *prima facie* evidence that our sacred Scriptures would not sanction any act whereby wanton and unnecessary pain is inflicted on the brute creation. I may aver, without fear of contradiction, that no legislation is so imbued as is the Mosaic Law with tender consideration for the dumb animal. I need but quote a few of the precepts laid down on this head. "Thou shalt not see thy brother's ass or his ox fall down by the way and hide thyself from them; thou shalt surely help to lift them up again." "Thou shalt not muzzle the ox when he treadeth

out the corn." "Thou shalt not plough with an ox and ass together." The Talmud lays down the rule that he who inflicts pain on any living creature acts in flagrant violation of the Divine command. The ancient rabbins did not overlook the faintest hint that might impress this lesson of tenderness. They remind us that we must not partake of any meal ere we have provided for our domestic animals, for we are told, "And I will send grass in thy field for thy cattle, and thou shalt eat and be satisfied." Almost an anticipation of Rowland Hill's favourite saying, "I do not think much of a man's religion unless his dog and cat are the happier for it."

We may then assume *à priori* that no regulation would be given in the Bible, the effect of which would be to inflict any needless pain. Our method of slaughtering is recorded in forty-two passages in the Bible, where the killing of animals is spoken of either for sacrifice or for food; and without entering upon any philological niceties, commentators are agreed that the mode of slaughtering cattle practised in Bible times was in all cases by cutting the throat.

Nor is there any difficulty in learning the motive for this method. No process is better calculated to drain the animal of its blood, the partaking of which is, as you know, strictly prohibited in the Pentateuch. "Only ye shall not eat the blood; ye shall pour it upon the earth as water." I do not pretend to assert that we know with absolute certainty the reason for this command; but Holy Scripture affords us some clue with respect thereto. It tells us, "The life of the flesh is in the blood." The truth is indicated which all modern researches in physiology tend to confirm more and more, that blood is the vehicle of life to the animal frame, the circulating medium maintaining vitality in every organ of the body, and feeding the brain, the fountain of thought and action. It is a remarkable fact, disclosed by the investigation into the nature of disease germs which eminent scientists have recently made with the help of the microscope, that in many cases the blood of the animal may be the seat of a fatal disease, whilst the solid tissues may still be nutritious and serve for wholesome food. Hence the avoidance of blood and the excision of the blood-vessels prevent the absorption of disease-germs into the human system, which might exert a poisonous effect upon the constitution. And even when the blood of an animal is not infected, we may surmise, from the knowledge we have gained on the subject, that grave objections exist to its being used as an article of food. We know, from the ascertained influence of

certain narcotics, that what passes into the blood after the processes of digestion powerfully affects the brain, sometimes acting on the intellectual, sometimes on the moral qualities of man—now weakening, now stimulating those powers. We have not yet precisely ascertained how the brain is acted upon, but we have learnt sufficient to know that what we eat and drink does affect our intellectual nature. What, then, is more probable than that if the blood of a brute animal be ingested into our frame, some of the qualities of the animal will become communicated to us through its blood, may become part of our nature, troubling and debasing us? Do not regard this as a mere fanciful conjecture. There is much truth in what Moleschott has said: “Der Mensch ist was er iszt”—“Man is what he eats.” And it is an established fact that the differences perceived in the mental characteristics of various nationalities are largely due to the particular nature of the food and the drink of which they partake,

This, then, is the second reason for which the Jewish method of slaughtering animals, termed “Shechita,” is resorted to; and every possible precaution is taken to render this process like an operation of modern surgery, *cito, tuto, et jucunde*, swift, safe, and painless. I will cite the precautions enjoined on this head in the Talmud, in the scientific language used by Dr. Maurice Davis, in an article dated February 15th, 1881:—

(1) “The process has to be continuous; any interruption, however minute, being likely to prolong the sufferings of the animal, renders it unfit for food.

(2) “The incision must be made by a to-and-fro stroke, without any pressure beyond what is necessary to carry the knife down to the required depth.

(3) “The wound shall not be made so high as to risk contact of the knife with the osseous structures above the cartilaginous rings of the trachea.

(4) “It is forbidden that any tissue be torn or jagged. As a surgeon is careful to preserve a clean-cutting edge to his knife, so the slayer of cattle is bound in an equal degree to set his instrument with so much care, that it shall excel in keenness that of the razor. And so great is the earnestness evinced in the fulfilment of this law that his attention is especially directed to it, so that he may detect with his finger-nail the smallest notch on the edge of his knife; and, as a test of his skill and care in the operation, he is required again to inspect his knife after the completion of it, when, if the instrument be found notched in the slightest degree, the flesh of that animal is not allowed to be eaten.”

The men who are appointed to perform this duty have

to undergo a lengthened training, both theoretically and practically. Their competency is tested by the authorities constituted for that purpose. Careful investigation is made into their moral character. Prior to their performance of the operation, they have to pronounce a benediction: “Blessed art Thou, O Lord our God, King of the Universe, Who hast sanctified us by Thy Commandments, and given us the precept of ‘Shechita.’” There is then every reason to anticipate that these slayers of cattle will not become hardened by their vocation, but that they will treat animals with all possible care and tenderness. I need, therefore, hardly stay to point out how utterly ungrounded and undeserved are the aspersions which a writer of hysterical circular letters to the press has recently sought to cast upon a highly respectable and respected body of men.

One important point, however, remains to be dealt with. It may be argued, “We will not dispute the fact that the design of the Mosaic Law was humane in accordance with the ideas prevailing at the age when it was enacted. But has not science since those days discovered other methods of killing beasts which are more certain, more expeditious, and at the same time more painless?” In reply hereto I have to observe that from the very first moment that a voice was raised adversely to “Shechita,” about 28 years ago, in Switzerland, my brethren in faith applied to the most eminent biologist and veterinary surgeons in Europe requesting them to give their scientific opinions as to the advantages or otherwise of our method compared with pole-axeing, pithing, and the more recent processes, the use of the bouterole and shooting mask.

There is quite an extensive literature on this subject. I could quote to you a long and imposing array of men who enjoy a European reputation, who have pronounced strongly in favour of our method. I will only mention Professor du Bois-Reymond, Director of the Physiological Institute in Berlin, Ercolani of Bologna, Fick of Würzburg, Gamgee of the Albert Veterinary College, Gerlach of Hanover, Gurlt and Hertwig of Berlin, Probstmayer of Munich, Mr. Roeckel, of the National Orthopædic Hospital, Zangger of Zurich. And I have only time to quote the opinion given by one who towers head and shoulders above his *confrères*, the great physiologist, Professor Rudolf Virchow, Director for nearly forty years of the Pathological Institute in Berlin. He writes as follows:—“As far as I possess knowledge concerning the mode of slaughtering cattle prescribed by the Jewish ritual, this method has been enjoined with the view of avoiding needless torture and to render the meat better

adapted for human consumption by the entire removal of the blood. This object can be perfectly attained by means of the prescribed process. Indeed, if all the provisions of the ritual are fully observed—a circumstance which may be reasonably anticipated—it will be attained with greater certainty by this than by any other method. Hence, in my opinion, it cannot be asserted, with any show of justice, that the Jewish method of slaughtering, in contradistinction to other methods, involves cruelty to animals.”

In connexion herewith it may interest you to learn that last year the Russian Society for the Protection of Animals desired to take hostile action against the Shechita. A Jewish physician, Hofrath Dr. Dembo, physician at the Alexander Hospital of St. Petersburg, who has thoroughly studied the subject and published his researches in a learned treatise, delivered a lecture on the subject, wherein he pointed out the advantages of the Jewish method and the defects of other processes, dwelling exclusively on the scientific aspects of the case and entirely ignoring the religious question. His arguments and demonstrations were so convincing that it was resolved to forbear from adopting any adverse measures.

Exception, however, has been taken to our method in some quarters, not on the ground of its being painful, but in consequence of the “casting” of cattle which it involves so as to place them in a proper position for the operation. Now, the term “casting” is in some degree misleading; the ox is let down gently on the ground by ropes. We have even appointed a special officer whose duty it is to watch that the so-called “casting” be performed by the employés of the several butchers as carefully and painlessly as possible. Mr. Roeckel, surgeon at the National Orthopædic Hospital, in describing a surprise visit he paid to the *abattoir* in Whitechapel, characterises this procedure as having been done skilfully, without causing the animal the least pain, or even, apparently, fright. Mr. Philcox, Superintendent of the Foreign Cattle Market at Deptford, writes: “I cannot think of a better plan of ‘casting’ than the one in use; skilful men seem to ‘cast’ the animals quite easily.”

But even when the animal has been slaughtered in accordance with the prescribed method, its flesh is not yet permitted for human consumption. According to the literal wording of the Pentateuch, meat of animals that have died of themselves, or that have been torn by wild beasts, is forbidden. Jewish tradition has extended the prohibition to animals that suffer from some mortal disease which would cause their premature

death. Hence it is the duty of the slayer of animals to search whether such morbid condition exists. As the lung is the organ most likely to be diseased, it is the one most diligently searched and severely tested, in accordance with minute directions contained in the Talmudic treatise *Chullin*. The lungs have been closely inspected to see whether there be any rupture or perforation of its substance, whether there be adhesions either between the tissues of the lobes themselves, or between them and the ribs, and whether there be any pustules, &c. Hence the existence of pleuro-pneumonia, tuberculosis, and any other pulmonary disease will at once be detected, and the meat of such animal declared unfit for food.

It is only within our days that the hygienic importance of this careful examination has been fully realised. Its advantages have been expounded in several papers written by my valued friend, Dr. Henry Behrend, who whilst equipped with the needful medical and surgical knowledge, is likewise in full possession of our specific regulations on the subject. All that I can tell you on this subject is drawn from his dissertation, “The communicability to man of diseases by animals used as food,” and an article on “Diseases caught from Butcher’s meat,” which appeared in *The Nineteenth Century*, of September, 1889. Basing his researches on the famous report of Dr. Koch on the “Etiology of Tubercular Disease,” he shows that many diseases common to man and the lower animals are communicable from one to the other, and that this is especially the case with tuberculosis. He proves, on the strength of high medical evidence, that infective phthisis and other grave lung diseases are due to the ingestion of the flesh of affected cattle, and maintains that the comparative immunity of the Jewish race from tubercular diathesis and phthisis is due to the fact, that by their religious ordinances they have been compelled to abstain from the partaking of such meat. For he says, “it is not saying too much to assert that these talmudical laws of *Bedikah* (i.e., searching) carried out in their integrity, render the consumption of meat affected with specific maladies practically impossible, and especially eliminate every risk of the infection of pleuro-pneumonia or of the anthracoid and tuberculous diseases.” And he demands that stringent measures should be adopted for the inspection of carcasses in *all* slaughter-houses so that meat from tuberculous cattle should be absolutely withdrawn from the food supply.

I do not entirely assent to Lord Beaconsfield’s witty adaptation of the Preacher’s words, “*Sanitas sanitatum*,

omnia est sanitas." The body does not constitute the whole being. But this one fact we readily acknowledge, that in labouring to secure for our fellow-men a healthy mind and a healthy body, we are striving for a noble and godlike aim. We seek to secure for them one main element of human happiness. We render them better fitted to lead a life of truth and righteousness and to perform their duty on earth, so that they may be worthy of the great Hereafter.

*PATENT ALIAS QUACK MEDICINES.**

By the EDITOR.

No. XIX. (New Series.)—St. Jacob's Oil; Mother Seigel's Syrup; Mattei's "Electricities."

IN our last article (HYGIENE for October 27th) we suggested certain desirable, indeed urgently needed, modifications of the Patent Medicine Law.

It would seem that at least one patent medicine proprietor desires a change from the existing misleading system. Turning over a country newspaper lately, we noticed, artfully mixed in with items of news, a curiously worded advertisement of a particular oil. It was headed

* The widely spread interest in the original series of articles published under this title in HYGIENE, and the great demand for the two volumes of reprints (VOL. I. has run out of stock, and only VOL. II., price 1s., sent post free by our publishers for 14 penny stamps, remains in hand) have induced us, at the request of thousands of our readers, to bring out a new series, containing many fresh reports and analyses, in addition to those which have previously appeared. The following articles have already appeared in this series. It should be mentioned that the new volume of HYGIENE, VOL. VII., began on May 13th, 1893, so that subscribers to that volume will have the complete series.

No. I. (May 13th) included:—Patent Medicines; Patent Medicine Law; Mattei's Electro-Homœopathic Remedies. No. II.—(May 20th), Clarke's Blood Mixture. No. III.—(May 27th), Clarke's Blood Mixture; Chlorodyne and other Opiates. No. IV.—(June 9th), Revalenta Arabica. No. V.—(June 16th), The History of Patent Medicines; The Sequah "Prairie Flower" and Oil. No. VI.—(June 23rd), Holloway's Pills and Ointment. No. VII.—(June 30), Correspondence about Holloway and Mattei. No. VIII.—(July 7th), Concerning Advertised Testimonials of Clarke's Blood Mixture. No. IX.—(July 14th), Allen's World's Hair Restorer; Mexican Hair Restorer; Singleton's Golden Ointment for the Eyes; Rowland's Kalydor and Gowland's Lotion for the Skin; Mrs. Anna Ruppert's Skin Tonic; Mattei's Electricities. No. X.—(July 28th), Quack Advertisements and Testimonials; Mother Seigel's Syrup; Clarke's Blood Mixture and the late Dr. Swaine Taylor. No. XI.—(August 11th), Clarke's Blood Mixture; the Alleged Testimonial from the late Dr. Swaine Taylor, F.R.S.; the Obverse and the Reverse. No. XII.—(August 25), Quacks' Testimonials; Mother Seigel's Syrup; Clarke's Blood Mixture. No. XIII.—(September 1st), Beecham's Pills. No. XIV.—(September 15th), Pink Pills for Pale People. No. XV.—(September 29th), Warner's "Safe Cure." No. XVI.—(October 6th), Quack Advertising; Clarke's Blood Mixture and the Bogus Testimonial from Dr. Swaine Taylor, F.R.S. No. XVII.—(October 20th), Anonymous Abuse; Warner's "Safe Cure" and Medical Staff; A Quack Libel Case; Morison's Pills; Baillie's, Dixon's, Fothergill's, and Lee's Pills; Clarke's Blood Mixture Testimonials. No. XVIII.—(October 27th), Electric Belts; Nicholson's Patented Artificial Ear Drums; Mattei's Electricities.

"A Difficult Case," and had at the top of it a wood-cut illustration of a judge seated on the bench, and looking very grave and perplexed. The advertisement is couched in the anecdotal style now much affected by patent medicine vendors, and commences thus:—"There is a certain learned judge who sits in one of the London High Courts of Justice, who says that patent medicines, or—what he is pleased to term them—'quack medicines,' should never be used, except on the advice of a medical man. The judge may be correct as to the large majority of patent medicines, but there are exceptions to this rule." "Pleased to term them." The subject is not a pleasing one at any time, but if a judge in court was pleased to call patent medicines by any other name than quack medicines he would sacrifice his reputation for truth and discernment. The exception to the rule is, according to the advertisement, St. Jacob's Oil; and details are given of the case of a young man living at a village near Uppingham, with the avowed intention of proving this assertion.

The narrative states the symptoms were of a rheumatic character; that the patient was under the treatment of the family doctor from January, 1883, to October, 1886, when he gave the patient up as beyond his skill and ordered him to be sent to the Leicester Infirmary; that, at the end of two weeks the patient was discharged from the Infirmary as incurable; and that, as a last resource, he was placed under the care of a celebrated physician in Leicester, where he remained for a long time, but continued to get worse. Finally, his case having been pronounced incurable by "some of the most celebrated medical men in the Midland Counties," a few bottles of St. Jacob's Oil were bought, at the instigation of a neighbour, and after applying the contents, the patient was able to get about on crutches, becoming perfectly cured by January, 1888. The cure is spoken of as "miraculous," but we do not attach much importance to this expression, as it commonly occurs in patent medicine advertisements.

Indeed, we are not sure that we should have given a second thought to the matter, but for the circumstance that the advertiser complains that "the preparation in question" is "under the ban of a patent medicine." What does he mean? We presume that he objects either to the alternative name "quack medicine," or to the judge's opinion that, being such, it ought only to be used on the advice of a qualified medical practitioner. If the judge's ruling were followed, the manufacture of St. Jacob's Oil would sink at once into insignificance, for any medical man would be culpably indifferent to his

patients' interests as well as his own professional character if he prescribed St. Jacob's Oil, seeing that this marvellous, miracle-working preparation is made of common ingredients possessing no remarkable curative properties, as will be shown presently.

Having a better acquaintance with medical men in the Midland Counties and elsewhere than the proprietor of a quack nostrum could be expected to possess, we were curious concerning the "most celebrated" who had, in sporting parlance, thrown up the sponge after futile struggles with the mysterious ailment, so marvellously cured, and we asked a friend to write to the patient's father inquiring their names. The reply, which we give exactly as written, was as follows:—

"In ancey to yours of this morning which we recevd, you ask me to state the case of my son the treatment he receved at Leicester was at the infermery and from an old Docker which has past away since then, and then he" (the son, we imagine, not the Docker), "was sent to the Devenshire Hospital Buxton and from their he was sent home quite a cripple on cruthes, and was al formes and then i gat the oil and i have the same great faith in them as i always have done."

It is a singular misfortune that, like "the Docker" referred to in the foregoing epistle, the doctors whose professional reputations are so mercilessly marred in quack testimonials die before the testimonials have wide circulation; but as we mentioned in the article on Patent *alias* Quack Medicines (No. XII., New Series, HYGIENE for August 25th), it was a still greater misfortune to the proprietors of Mother Seigel's Syrup that they assumed that a certain doctor had passed away in one sense when he had only done so in another, having merely changed his residence. Their mistake about the *late* Dr. Dacre Fox cost them several thousand pounds.

It is also a singular misfortune that the people from whom patent medicine proprietors get such unstinted praise are usually persons—we will not use the hackneyed phrase, whose education has been neglected—who have as obvious a disregard for grammar and literary correctness as the patent medicine proprietors themselves have for veracity. If the case were otherwise, we might get more coherent and reliable statements of facts, and thus have a proper opportunity of forming definite opinions.

Te return to the question of the composition of St. Jacob's Oil. What does this "miracle-working" St. Jacob's Oil really consist of? Some, perhaps, will conjecture that the costliest, the choicest, the most delicate essences must be united to constitute so marvellous a remedy. But if so, then Dr. Selkirk Jones must surely have made some mistake. He writes:—

In accordance with instructions I have purchased a bottle of St. Jacob's Oil from a chemist here, and have submitted the same to a careful qualitative analysis. I find the contents chiefly comprise oil of turpentine, in which is dissolved ordinary camphor, scented with an essential oil (most probably oil of thyme).

As a medical man, I am of opinion that this Oil possesses no special therapeutic value, but, as in the case of ordinary embrocations (such as the Compound Camphor Liniment of the British Pharmacopœia) the relief afforded to the patient by its use is derived principally from the mode of its mechanical application, whereby rubefaction is produced and blood circulation accelerated. Indeed, this oil may be regarded as an ordinary stimulating application and *nothing more*.

GEORGE SELKIRK JONES, Ph.D., L.S.A.

According to the Old Testament, Jacob was badly used by his future father-in-law, but the treatment he received at Laban's hands was trifling as compared with the indignity heaped upon him (after dubbing him Saint, too) by appropriating his name to a mixture of common vulgar "turps," crude camphor, and oil of thyme, and adding insult to injury by claiming for such stuff that it possesses miraculous powers!

"Turps" do cost money though, as any house painter would tell us, so that St. Jacob's Oil may be regarded as of higher commercial value than Mattei's Electricities, which are so miraculous in their action that, according to some of Mattei's dupes, when administered in doses of a few drops they will cure cataract and unite broken bones! Mr. Stokes' analysis showed that the so-called "electricities" were *Water*—"nothing more," as the old song says. We have been loaded with anonymous abuse and threatened with legal consequences, on account of our articles on Mattei's watery wares (see HYGIENE for May 13th, June 30th, and July 14th), but, somehow, as in other instances of our publishing analyses of quack medicines, our assailants turned out to be of the Bob Acres' stamp. Mr. Stokes, too, stood firm as to the accuracy of his analysis. The following analysis and report furnished by Professor Michaud, chief of the Cantonal Laboratory of the Department of Justice at Geneva, bears out to the very letter all that Mr. Stokes reported:—

Analysis of five phials of Mattei's Electricities obtained from Mattei's depository, June 9th, 1892:—

The examination of the five different phials has given the following results:—

About fifteen grammes of a colourless liquid, without odour or flavour.

Chemical composition *identical* with that of *pure water*.

Contains deposits similar to those of stagnant water tainted.

The microscopic and physiological examination confirms the chemical analysis, as well as the previous analysis made by Professor Stokes, of London, who declared the *therapeutic value* to be *nil*.

Mr. Stokes's conclusions seems to me to be *conclusive*.

L. MICHAUD, Professor,

Geneva, June 11th, 1892. Cantonal Expert in Chemistry.

HANDYSIDE'S CONSUMPTION CURE. — Several correspondents who have written to us concerning this quack medicine, are referred to the "Answers to Correspondents" on the last page of the present number.

BATHS.

By PROF. T. ROGER SMITH, F.R.I.B.A.

A GENERAL and well-founded impression prevails that the Romans were skilled in the construction of baths. Indeed, in most places where Roman remains exist, some traces of a bath are to be found; but the practice of the Romans was so remarkable, and the public baths, or *Thermæ*, erected in Rome during the Empire, were such wonderful structures that it is worth our while at the outset to direct our attention to them, the more so, as my argument will be that it is our duty at the present day to try to accomplish for the inhabitants of our towns and cities, though in an entirely different way and by means widely dissimilar, the same result which those vast and lordly structures accomplished for the citizens of Rome.

On the sanitary value of the bath and of bathing it is hardly my province to enlarge, but I must not pass it over without a word. No part of the human body is so accessible as the skin, and its great extent and intimate relation to all other parts of our organisation alike point it out as requiring care. The ailments which are due to a chill disturbing the functions of the skin are perhaps the most numerous of all to which we are subject in this country, and not the least deadly; and they are to no small extent preventable by the habitual use of the bath, and to a considerable extent curable by its means. The vast groups of rheumatic and gouty complaints, if they yield to anything, yield to baths properly applied; but, beyond all this, general health seems largely dependent upon cleanliness, and habitual neglect of the bath is not only contrary to our notions of self-respect and decorum, but it is insanitary. The skin cannot perform its functions properly when it is not cleansed, and if the

skin be out of order, every part of the animal economy suffers more or less.

To return, however, to the Roman *Thermæ*, they were vast establishments, each wonderful both for extent and completeness. Each of them was the gift of an individual emperor to the nation. They stood in different parts of Rome. They were accessible to the citizens, and at an extremely small price: at one time half a farthing (a *quadrans*) seems to have been the charge.

From the baths of the Romans, it appears natural to pass to the modern hot-air bath, known by the name of Turkish Bath, in which the bather goes through a course, which is supposed, and with reason, to bear a general resemblance to what the Roman *Thermæ* afforded.

The true Turkish Bath as given in Eastern cities, is a more severe and prolonged treatment than is undergone in a modern English bath bearing that title.

In an English Turkish bath the visitor first divests himself of his boots, and then undresses in a room provided for the purpose. He is then conducted into a hot room of which the atmosphere is dry as well as hot, and remains for some time till a profuse perspiration breaks out—hardy bathers venturing into an inner and hotter room. He is then shampooed, though not always with much thoroughness, he is next deluged with soap and floods of warm water, and then often has a needle-bath, *i.e.*, a bath where water is thrown upon him from a number of fine perforations. The temperature of this is gradually lowered so as to cool the bather down. Then follows a plunge into cold water, and the victim, wrapped up in towels, may then repose in a cooling chamber, and enjoy well-earned rest, with perhaps refreshment, till he is minded to dress and depart. The accommodation for all this should be all on the one floor—airy, commodious, open. An ample supply of hot air and of hot and cold water, and well-considered means of carrying water away are indispensable, as also the means of providing hot and dry air at any temperature and in great volume. As a good many attendants are wanted, considerable provision for them is requisite, and the bathers occupy a good deal of space, so that, altogether, a Turkish bath, which many persons attend, requires large and specially arranged premises, and must, I fear, always remain a somewhat high-priced luxury. It affords an excellent opportunity for effective architectural treatment, and it is no doubt a very valuable sanitary agent, but the hot-air bath cannot, at any rate as at present administered, be reckoned upon as the bath for the million.

Perhaps it may save recurring to the subject, if I refer here to the vapour bath as an appliance which, combined with a needle bath or spray, is capable of being used in any ordinary bathing establishment, and of exciting something of the same sort of action on the skin as the Turkish bath. This appliance it would be possible to introduce into establishments where inexpensive baths are given with advantage. In some cases patients who are advised that the Turkish bath is not safe for them are allowed a vapour bath, as the head is always kept out of the box in which the body is steamed. Still this more simple appliance cannot supply the popular bath that I desire to advocate.

The swimming-bath is necessarily a more or less public institution. It is in its nature large and expensive to establish and maintain, but it is almost unequalled as affording to great numbers a means of healthy, pleasant exercise, and as furnishing an opportunity for the young and others to acquire the valuable art of swimming. No pains should be spared to make it attractive as well as convenient.

A swimming bath of modern construction is a large tank, usually long in proportion to its width, shallow at one end and fairly deep at the other, walled in and roofed over, with a floor all round and numerous dressing boxes. The interior should be light and airy, the water should be sufficiently warm, perfectly fresh, bright and clean, and the dressing boxes should secure some degree of privacy. As the swimming bath, if successful, will be worked pretty hard, it is necessary to have the means of rapidly and thoroughly cleansing every part in use, and of quickly emptying and refilling the bath.

The water delivered into the bath, whether pumped up or from the mains of a water company, will be too cold for bathing in most states of the weather; and how to warm it is a most important point, for it is not only essential to be able to raise the temperature from the point at which it is delivered, which may probably be from 50° to 60° up to say 75°, or at least 72° Fahrenheit, but it ought to be uniformly raised through the entire mass of water in the bath. If there are cold zones and hot zones in the water, bathers will not like it, and a bath that is disliked will be of comparatively little use to its owners or the public.

In some cases hot water and steam are circulated in pipes within the bath itself, the pipes being as a rule fixed in a recess formed for them in the walls of the bath. In others a long chamber is formed outside the bath tank, and fitted with hot-water pipes or steam pipes, and the water is admitted into this cool and returned to

the bath warm. In another arrangement the water is drawn off from the bath, heated in a furnace, and returned warm. Sometimes steam is simply blown into the bath itself, an expeditious but noisy way of raising the temperature. Most of these plans are more or less liable to heat the water unequally, and in more than one of them there is apt to be introduced a pipe, or a jet, or a something which is found to get too hot for bathers to touch without injury. The plan, the results of which, so far as my experience extends, are the best, is one differing from all these. It was put up for me at the baths of the Carpenters' Company, at Stratford, by Messrs. Fraser, and I can speak strongly of the success of this apparatus as a means of warming the water uniformly and effectually, and helping to keep it fresh.

At the deep end of the bath and near the bottom, an iron pipe is introduced, which is carried (outside the tank) back to the shallow end, and to which the water has free access. In the course of this pipe is introduced an iron chamber, into which a powerful jet of steam under considerable pressure is thrown; this acts upon the contained water on the principle of a Giffard's injector and hurries it on, so that it is returned into the bath travelling at some speed, and of course the water that takes its place is drawn out at the same speed. The steam mingling with the water in the chamber raises its temperature, and the result is that a stream of warmed water is always pouring in near one corner of the shallow end of the bath, while an equal quantity of cold is always leaving at the opposite end. The temperature is by this simple means gradually and equably raised to what is required, and is easily maintained; and what is satisfactory is, that the warmth is found to be uniform all over the bath, and that as the water is always in gentle motion, it keeps remarkably clear.

A method resembling that of Messrs. Fraser, but carried further, is that of Mr. C. H. Rosher. He employs either the steam-jet just described, or a pump to effect a circulation of the water in the bath tank during the heating process; but he admits the heated water at the bottom of the tank, distributing it over the floor of the bath by discs or spreaders. It is claimed that this method promotes uniformity of temperature and rapid heating, and prevents steaming from the surface of the bath and loss of heat.

With this system of heating this engineer combines a second improvement, directed to secure economical working of a bath. The heaviest expense in working a swimming bath is usually the cost of water. It will take about 60,000 gallons of water to fill a bath 25 ft. by

80 ft. This, at 6*d.* per 1000 gallons, a usual price, will cost 1*l.* 10*s.*; and should the bath be refilled daily, except Sundays, the expense would be 9*d.* per week for water only, in addition to the cost of fuel used in warming the incoming water. Mr. Rosher proposes to filter and to aerate the water by appropriate machinery placed in a small chamber formed for the purpose, and so to render the same supply fit to last much longer. Filtration will, it is considered, remove the solid impurities, such for example as those which the settlement of dust on the surface of the water occasions. Aeration will oxidise, and so neutralise some organic impurity. I believe this system has been successful at Woolwich and other places, where it has been tried; and there can be no doubt that a plan which will diminish the amount of water used in a bath without rendering it less pleasant or less healthy, promises to effect a very great economy in working. Other plans for filtration have, I believe, been brought forward, but this is the most complete that has come under my notice, and the only one which includes a provision for constantly recharging the water with air.

(*To be continued.*)

CREMATION: THE LEGAL OBJECTIONS TO ITS ADOPTION CONSIDERED.

IN the recent article on this subject (HYGIENE, October 13th), we stated that the opposition to the universal adoption of cremation as the means of disposing of the dead was based on three sets of objections, namely, the religious, the sentimental, and the legal. With the two former we dealt so completely that we need not again refer to them. As regards the third difficulty which has been thrown in the way, we showed that the legal objections were not so serious as has been advanced by the opponents of cremation. The rapidity with which all traces of vegetable poisons, such as morphia, atropine, &c., are lost, practically does away with the stock argument that, if suspicions of foul play should arise after the body has been buried, it can be exhumed and examined; whereas, in the case of cremation, there is no opportunity for an inquiry at any time after the body has thus been disposed of. Further, we proved that during the last twenty years the average annual number of exhumations had been only five—a fact sufficient to demonstrate that exhumation is rarely resorted to.

But, as a matter of common sense, the time to make any inquiry is as soon as possible after death, when the facilities of ascertaining all the circumstances are readier

and more satisfactory than at any later period. The Cremation Society have very wisely solved this question for themselves, and the certificates required by them before a body can be cremated, leave nothing to be desired on the score of clearness and security against criminal causes of death. If the answers to the questions contained in the certificates (which, by the way, were drawn up about a year ago by Sir Henry Thompson, F.R.C.S.) are not absolutely satisfactory, the Society's officials refuse to allow the cremation to take place, and a further inquiry must necessarily result.

The precautions are as follows:—

1. A statement has to be filled in by a near relative or friend, giving the full name of the deceased, the place of residence, age, date of death, whether married or single, widower or widow, whether the death occurred at the deceased's own residence, and if not, whether it took place at a friend's house, hotel, lodging, boarding, or nursing house, hospital, school, college, or other public institution, employer's house, or other place.

Two medical certificates are required, the one from the medical practitioner who personally attended the deceased, the other from a doctor, appointed or approved of by the Society, who has made an inquiry into the death and collateral circumstances.

The questions comprised in the former certificate are:

"1. How long have you professionally known and attended —? 2. Did you attend him (or her) in his (or her) last illness, and on what date did you see him (or her) last? 3. Did you personally ascertain that death had taken place, and the body was that of the before-named? 4.* What was the nature of the disease or injury—privation or neglect, if any—causing death (mentioning the duration in years, months, or less)? 5.* What was the immediate or proximate cause of death (mentioning the duration of the final stage or attack in days, hours, or less)? 6. Had any surgical operations been performed during the last few months, and, if so, of what nature? 7. Is the above report, regarding the questions marked *, based on a necropsy, or on your personal knowledge of the course of the disease during his (or her) last illness? 8. With your knowledge of his (or her) age, constitution, and habits, does the character of the fatal attack suggest any doubt as to its cause, or is there any circumstance leading you to believe that a further examination of the body is desirable?"

This certificate to be signed by the medical attendant, also adding his registered qualifications, and the date of the certificate.

The second certificate runs as follows:—

"I certify that I have, in relation to the expressed desire that the deceased should be cremated, carefully and separately investigated the circumstances connected with the death. I declare that there are no circumstances connected with the death which could, in my opinion, make exhumation of the body hereafter necessary." To be signed, with professional title, address, and date.

The following notice is placed at the foot of each certificate-form:—

"N.B.—The Cremation Society reserves to itself the right of refusing to carry out cremation in any case, without assigning any reason."

Those of our readers who are cognisant of the meagre, loose particulars given in an ordinary certificate, will at once see the immense superiority of the Society's certificate-form, as well as the safeguard which it affords against non-detection of death from violence, ill-treatment, or poisoning.

With reference to numerous inquiries which have been addressed to us concerning the cost of cremation, we may mention that the Society have lowered the inclusive charge for cremation at their Woking Crematory to £5.



REVIEWS AND NOTICES OF BOOKS.

CONTINENTAL SANITARY PERIODICALS.

THE *Revue Internationale des Falsifications*, edited by Dr. P. F. Van Hamel Roos, of Amsterdam (Oct. 15th, 1893), is, as usual, full of interesting information upon the great commercial vice of civilisation, Adulteration. The last monthly number contains a variety of articles bearing upon this important subject.

The adulteration of butter seems to be one of the commonest frauds committed by dishonest traders in most European countries. What occurs in this respect in England must be within the knowledge of every newspaper reader. Do people fare better abroad? It would seem not to be the case in Holland; for Dr. Van Hamel Roos says that out of samples of butter recently analysed in his laboratory, many consisted only of fat—that, too, of very bad quality—disguised with yellow colouring matter, the rogues who had made the spurious article having been so bold in their swindling as to forget to put in any real butter at all. Though bad for the customers, this circumstance made it proportionately easy for the analyst to arrive at definite conclusions as to the character of the samples. We may mention, in passing, a simple though excellent test for butter. When

the intending purchaser puts a small portion in his mouth, it will soon wholly dissolve, if it is pure butter; if it is not, there is no such complete dissolution, and the fatty matter clings to the roof of the mouth. Adulteration is more severely punished on the Continent when offenders are detected than in England. In another part of the *Revue* is reported a case which came before the correctional tribunal of Brussels, the accused person, a butter-merchant, being charged with adulterating butter supplied by him to various charitable institutions in the Belgian capital and in Ghent. He was acquitted, through some want of unanimity amongst the experts engaged to give evidence; but his triumph was short-lived, for the case was next brought before the Court of Appeal, and the result was that the offender was condemned to a month's imprisonment, and to pay a fine of 1000 francs, with three months' imprisonment in default, and also to pay the costs of the hearing, 830 francs more, with an additional three months' imprisonment in default of payment. A severe sentence, yet just; for out of twenty samples examined, ten were found to be adulterated with a considerable quantity of margarine, and three others were of a suspicious character. Elsewhere in the same number of the *Revue* is a note by Mr. M. H. W. Wilney on the adulteration of butter in England, directing attention to a peculiar substance lately introduced into commerce under the name of "the Gilt-edge Butter compound." A small quantity of this mixed with cream or butter at a certain temperature below the melting point of the latter renders the butter capable of absorbing almost 50 per cent. of its weight of water. This "guilty" butter compound consists of 70 per cent. of anhydrous sulphate of soda and 30 per cent. of pepsine.

Other adulterations specially described in this number of the *Revue*—which is a sort of food *Police Gazette*, for the detection of commercial crime—are in Switzerland (reported by Dr. Schaffer, Chemist for the Canton of Berne), spirits, groceries, washing powder, and petroleum oil. In speaking of beer, Dr. Schaffer says that the number of breweries in the Canton of Berne has diminished from 54 in 1884, when he previously reported on this subject, to 47 in 1892—whether by the absorption of the small establishments into the larger, or owing to the more temperate habits of the people, he does not tell us. He does say, however, that the Bernese beers are usually strongly fermented, and that no instances of adulteration have come under notice. Teetotallers may object to Dr. Schaffer's praise of the Bernese beer, as indirectly tending to its increased

consumption; but they may derive some satisfaction from the fact that it is a very common practice with Bernese dealers and restaurant keepers to dilute their spirits to a far greater extent than is permitted by law. This trick exists, however, to such an extent in England that we should not be surprised some day to hear that some publican, favouring the cause of temperance so far as his own pocket is concerned, had boldly come out in his true colours, and re-named his house the "Wilfrid Lawson Arms." Water appears to play a leading part in the adulteration of Swiss washing-powders, seeing that some samples of these contained nearly 50 per cent. of water, while ordinary soap contains only from 20 to 30 per cent.

Reports from analysts in other countries describe adulterations detected in wines, beer, cider, tea, the Kola nut, &c.

Le Génie Sanitaire (Paris) contains several good articles in its recent number, the principal being upon the purification of sewage by electricity—the Hermite system, so named after its inventor, Mons. Hermite—which has been the subject of experiments conducted upon a large scale at Havre, in connexion with the International Exhibition of Hygiene held at that city. These were carried out by the French company owning the Hermite patents, but the Municipality of Havre voted a grant of 4000 francs towards the expenses. The Hermite system of purification is based upon the employment of a very powerful disinfectant fluid obtained by the electrolysis of sea water, or of a solution containing chloride of sodium and chloride of magnesium, in a special machine called the "Electrolyser." The chloride of magnesium is alone decomposed, and the chloride of sodium serves as a conductor. The disinfecting principle is a compound of oxygen with chlorine. The disinfectant solution is almost inodorous, and is innocuous. It destroys sulphuretted hydrogen, sulphate of ammonia, and all microbes, proving itself an aseptic and antiseptic of the highest order, seeing that it both destroys microbes and prevents putrefaction. Fæcal matter is destroyed instantaneously when it is mixed with the electrolytic disinfectant solution, there remaining only an inodorous fluid, deprived of the power of fermentation, and containing nothing besides phosphates, the salts of ammonia, and the salts of the disinfectants. The system is applicable both to towns or to separate houses. The article on this process is illustrated by several large photogravures. Another long article on the Animal Vaccine Institute at Paris, in the Rue Ballu, is similarly illustrated

NEWS AND NOTES.

The Smoke Nuisance.—In a paper read before the Church of England Sanitary Association meeting, held at Lord Brassey's house, in Park Lane, Mr. A. E. Fletcher, Government Inspector, said that the actual question was how to make combustion perfect, and then there would be no smoke in our towns and cities.

**

The London Sewage in the year ending on June the 30th, amounted to sixty billions (sixty-four millions of millions) of gallons. This enormous quantity yielded a precipitate of more than two million tons of sludge, containing 89 per cent. of moisture; this sludge was conveyed by special steamships down the Thames, and discharged in the Barrow Deep. Besides this sludge, some 10,000 tons of solid matter were intercepted at the outfall and destroyed by cremation in furnace-destructors.

**

Watford.—We learn from the *Watford Observer*, copies of which have been kindly forwarded to us by one of our subscribers, that many of the ratepayers are dissatisfied with the existing local administration, and excessive expenditure, such as 14,000*l.* on the erection of an infectious diseases hospital. They argue, with considerable reason, that it would be better to lay out more money in making a better system of drainage, and on other sanitary works,—on the principle that prevention is the best form of hygienic measures. In the report of a recent meeting of the Watford Local Board, we notice that reference was made to the new drainage scheme. One of the members stated that they had been waiting five years for a report from the consulting engineer, Mr. Urban Smith, and that Mr. Smith had said that the report would be the more valuable the longer it was delayed? There must surely be some mistake here. Port wine improves by keeping, but it is a new theory that sewage can be advantageously treated in a similar manner.

**

Extraordinary Waste of Public Money.—An inquiry has been held at Esher, in connexion with an application made by the Kingston Rural Sanitary Authority for the sanction of the Local Government Board to a proposed loan of £6875, for sewerage works in the Esher and Dittons special drainage district. It was elicited that since October, 1887, no less a sum than £63,734 had been expended on this account, and that the contractors had carried out the work in an unsatisfactory manner. The Inspector sharply criticised the action of the Local Authority, who had allowed it to be done by day work, instead of putting it out to tender, and had permitted the contractor to charge for materials, time, and the use of tools—a most unusual item—added to which was ten per cent. commission on the outlay. He, Major-General Phipps Carey, R.E., characterised the work as "the most expensive bit of sewerage ever constructed."

Milk Adulteration.—An appeal from the decision of the Birmingham magistrates, who fined the appellant, a farmer, 25s. for selling milk not of the proper quality was heard on Saturday last, in the Queen's Bench. The offence was admitted, and the appeal was based on legal grounds, it being advanced by counsel for the appellant that the certificate given by the public analyst was not in the form prescribed by the Food Adulteration Act, 1876. The judges upheld the decision, on the ground that the certificate was substantially in accordance with the terms of the Statute, and was therefore good. At the same time, it should be remarked that it is very desirable that analysts should adhere to the prescribed form, and not introduce extraneous matter.



ANSWERS TO CORRESPONDENTS.

Handyside's Consumption Cure.—We have to thank several correspondents for their letters concerning the gross exaggerations disseminated about the marvellous properties of this and other quack medicines sold by a man, named Handyside, whose qualifications to cure consumption by what *he* styles "the greatest discovery of the present century" were, we are told, acquired by keeping a ready-made shoe shop in Dean Street, Newcastle-on-Tyne, and a subsequent commercial enterprise in making cheap leather by using chemicals, instead of oak-bark for tanning the hides. His stuff is undergoing examination in our laboratory, and we shall doubtless have something to say about it in an early issue.

W. S. (Birmingham).—Our attention had been called to the subject. We are obliged to you for the information given, and shall be glad to receive further particulars.

M. D. H.—The address of the Horsfall Refuse Furnace Co., Limited, is 9 Victoria Chambers, Leeds. For a detailed description of their apparatus see *HYGIENE* of Oct. 6th last.

A Subscriber (Monte Video) is thanked for sending us the *Monte Video Times* of Sept. 27, continuing the reprint of an article from a previous number of *HYGIENE*, on "Contaminated Water." We hope that Mr. Binnie's wise advice will bear good results in the far-off Uruguayan capital, where (as in most South American cities) typhoid fever is excessively prevalent.

Would-be.—The Local Government Act, 1888, enjoin that after Jan. 1, 1892, no person shall be appointed medical officer of health to any county, or district containing 50,000 or more inhabitants, unless he is the registered holder of a diploma in public health, or unless during three consecutive years previous to the date mentioned he has acted as medical officer of health to a district with a population of not less than 20,000 inhabitants.

A Constant Reader.—When a newspaper is registered at the General Post Office it can be transmitted by post to any address in the United Kingdom for the uniform charge of one half-penny, without regard to its weight.

Dr. Hill.—The information you desire shall be sent by private letter after we have completed the necessary inquiries.

Auctor.—Our publishers would print and publish your pamphlet on reasonable terms.

A Country Clergyman.—A cheap reprint of the "Patent alias Quack Medicines" series is in our printers' hands, and will be published in about a fortnight. The price is fixed at 6d. only to insure a very wide circulation, the public health being the point in view, more than the question of making any profit out of the publication.

G. Fraser (Edinburgh).—The Craighentenny meadows are somewhat primitive in their arrangements for sewage-irrigation. Edinburgh has had a complete system of sewerage since 1860; the natural slope of the ground is favourable to drainage.

A Housewife.—The blowing of veal is an objectionable practice; seeing that it is accomplished by thrusting a pipe under the skin of the dead animal, so that the butcher is enabled to blow the air from his lungs (necessarily foul from the product of respiration) into the cellular tissue of the meat, thus giving the carcase a deceptive appearance of plumpness.

A Sanitary Officer.—Yes; in Germany, when the isolation of persons suffering from infectious disease cannot be properly carried out, a black tablet with the name of the disease inscribed on it is placed in a conspicuous position on the house, and not removed until a medical certificate is given that all risk of infection has passed away.



EDITORIAL AND PUBLISHING NOTICES.

EDITORIAL.—The Editor begs to express his thanks to numerous correspondents, and to state that he will be pleased to receive any articles or correspondence coming within the scope of *HYGIENE*, books or pamphlets for review, reports of medical officers of health, items of general or local sanitary interest, newspapers (marked at the part to which it is desired to draw attention), &c.

ADVERTISERS are requested to bear in mind the greatly increased circulation of *HYGIENE*, with its weekly issue and reduced price. In addition to the large regular circulation, many thousands of copies are distributed annually to sanitary officials, medical men, private addresses, public libraries, clubs, hotels, &c.

HYGIENE,

A SANITARY PAPER.

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[No. 27.]

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THE SELF-PURIFICATION OF RIVERS, AND THE PRESENT STATE OF OUR KNOWLEDGE CONCERNING IT.

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The subject of the self-purification of rivers admits of being considered from two perfectly distinct points of view, as indeed do almost all other questions relating to the purity of water, viz., the chemical and the biological aspect.

Inasmuch as the organic impurities—and the controversy, of course, only refers to organic impurities—gaining access to rivers may be either devoid of life and unorganised, or living and organised, their discussion is in the one case a chemical and in the other case a biological question. Until recently the subject has been only discussed from a chemical point of view in consequence of the impossibility which formerly existed of obtaining any precise or accurate information on such matters of biology.

The firm conviction possessed by many, that rivers undergo spontaneous purification in the course of their flow, is generally based upon personal observations made upon streams in which the process appears to be going on in such a striking manner that no analytical evidence is required. All engineers are acquainted with streams which are visibly polluted at one spot and apparently pure a few miles lower down. When such cases are further submitted to analytical tests, the latter, of course, fully confirm the previous ocular impressions. In fact,

that such disappearance of organic matter does take place is beyond all shadow of a doubt, and it is mere waste of time to contest it. A bag full of feathers shaken into the air at one spot would similarly be imperceptible a few hundred yards away. That the polluting matter has been destroyed, however, in the course of a few miles' flow is almost as improbable as that the feathers should have been decomposed in their short flight through the air. In fact, when these cases of supposed self-purification come to be carefully investigated, it becomes very doubtful as to whether the phenomenon is due to anything beyond dilution and sedimentation. The careful experiments which have been made to test this point are by no means numerous. A series of investigations were made by the Rivers Pollution Commissioners of 1868 to test the point both as regards highly polluted streams such as the Irwell, Mersey, and Darwen, and comparatively pure ones like the Thames, but in both cases their results were of a negative character and pointed to no real purification, *i.e.*, destruction of organic matter, although there was distinct evidence of considerable improvement in the quality of the water through sedimentation.

Some years ago I undertook a series of experiments to further test this point in connection with the Thames, which has always been regarded by some as a river possessed of most remarkable self-purifying powers, and which undoubtedly often does reach London after a long flow through a cultivated and fairly populated district, in a surprisingly pure state. The experiments in question consisted in taking samples of the water flowing in the river at different points on the same day, with a view to

establishing whether on the whole the chemical quality of the water was improved or deteriorated during the course of its long flow. Thus on one day samples were taken at Oxford, Reading, Windsor, and Hampton; on another day at Chertsey and at Hampton; and on three different occasions samples were collected both at Windsor and at Hampton on the same day. The results of analysis of these samples clearly indicates that the chemical quality of the water underwent slight but almost continuous deterioration in flowing from Oxford to Hampton. It must be remembered that this deterioration is in spite of a very large increase in the volume of the water, a large proportion of which gains access to the river from springs in the chalk, and is of the very highest purity. Thus, Mr. Thornhill Harrison, C.E., has determined that the total increase in volume in the Thames between Maidenhead and Thames Ditton was (exclusive of the Colne, Wey, and Mole):—

In April, 1884	249,500,000	gallons per day.
On July 8, 1884	49,000,000	„ „
July 22 to 26	131,000,000	„ „
November, 1890	45,000,000	„ „
(Harrison on "Subterranean Chalk Water," Inst. Civ. Engineers, 1891.)		

In the above mentioned experiments I purposely limited the scope of my inquiry to the dissolved organic matter so as to avoid the complications arising from the suspended matters, concerning the removal of which by sedimentation there is no dispute; on this account all the above samples were filtered through Swedish paper before analysis. Indeed it cannot be too strongly pointed out that unless the questions of dissolved and suspended matters are kept wholly distinct in these investigations, no reliance whatever can be placed upon the results. The idea of any striking destruction of organic matter during the river's flow receives no sort of support from my experiments; the evidence is, in fact, wholly opposed to any such supposition.

I have also had an opportunity of making a somewhat similar experiment on the flow of the Ure and Ouse above York. In this experiment also there is not the slightest support to the theory of self-purification. Nor is there any diminution in the number of microbes during the observed flow.

Of foreign investigations on the same subject, there are those of Hulwa on the Oder at Breslau (*Chemical News*, 1884, 104) (Biedermann's *Centralblatt f. Agrikulturchemie*, XIII., Part I.), of Frank on the Spree at Berlin (*Zeitsch. f. Hygiene*, 1887, III., 355), and of Prausnitz

on the Isar at Munich (*Centralblatt f. Bakter*, 1890, VII., 404).

Of these investigators, Hulwa professes to have traced the complete purification of the Oder from the sewage of Breslau after flowing thirty-four kilometres. It is impossible to make any deductions from these results without a knowledge of the changes which the volume of water in the river undergoes during the flow.

A most complete description of the condition of the Spree during its flow from Berlin to Potsdam is given by Frank, full account being taken of the changes in volume during the course. The results arrived at by Frank are, however, very different from those of Hulwa, for Frank maintains that the change in chemical composition is very insignificant throughout, but that the number of microbes undergoes a most striking diminution during the flow, a result which he naturally attributes to sedimentation. Already in 1885, I had myself ("On the Removal of Micro-Organisms from Water," *Proceedings, Royal Society*, 1885, No. 238), shown to what an astonishing extent micro-organisms are removed in the subsidence of solid particles; this I had proved not only in the case of laboratory experiments made with the most varied materials, but also on the large scale in the softening of water by Clarke's process. The disappearance of the microbes in the water of the Spree during its sluggish flow through the lake-like extension which it forms after junction with the Havel at Spandau above Potsdam, is obviously due to causes of a similar kind.

In Prausnitz' experiments on the Isar at Munich, there is the same disappearance of microbes during the flow, which is again attributed to sedimentation.

A careful study, therefore, of these most recent investigations leads us to the inevitable conclusion that sedimentation is the main cause of any self-purification in river-water; as to any rapid oxidation of dissolved organic matter, there is still no reliable evidence, although of course dilution, which frequently takes place on the largest scale, as in the case of the Thames, without being suspected until made the subject of a most careful scrutiny, will produce a superficial appearance of such a result.

This removal of microbes by sedimentation during the flow of a river is unquestionably of great hygienic importance, and of much greater hygienic importance than the alleged oxidation of dissolved organic matter, which in itself can have no power of communicating zymotic disease; it is, however, a process which cannot be relied upon as furnishing any guarantee that harmful microbes turned into a stream at a given point will no longer be

present in the water at any point lower down. From the numerous experiments which have been made on the vitality of pathogenic microbes in water, there can be no doubt that many forms which might have subsided, as above indicated, would remain alive for long periods of time, and be carried down uninjured when the river was next in flood. Indeed, recent experiments of Lortet ("The Pathogenic Bacteria of the Mud of the Lake of Geneva," *Centralb. f. B.* IX., 709), have shown that such deposits formed in lakes actually and not unfrequently contain pathogenic forms in a state of vitality.

We must not allow, therefore, this sedimentation of microbes to cause us to relax our protective measures for excluding contamination from our streams; but, on the contrary, bacteriological research clearly indicates, on the other hand, the value and importance of purifying, by the very best available means, all dangerous liquids, such as sewage, before admission into the rivers; and, further, of submitting the water drawn from the streams for town supply, to the most careful subsidence and filtration through sand before delivery.

BRITISH HEALTH RESORTS.*

No. IX. (*New Series*).—*HASTINGS AND ST. LEONARDS*. 'No sunshine, no dry weather, no chance of going out of doors, *No-venner!*' Such was the gloomy, though true, observation made in our hearing a few days ago by a sick friend; a man in bad health to whom a bright atmosphere, a climate free from much humidity, and plenty of exercise in the open air were more than usually necessary, owing to the nature of his ailment. His moderate income rendered it impracticable for him to winter abroad, as had been recommended: at the same time, a temporary change to a more favourable climate was the one thing which seemed to afford a loophole of escape from a long and, probably, in the end, fatal illness. But why, thought we, should this unhappy invalid dwell upon the impossibility of his getting away to the South of France? There are many thousands of persons similarly circumstanced, who, like the Israelites of old, straining

their eyes to obtain a glimpse of the Land of Promise, overlook the benefits within their immediate reach. We could name at least a dozen places in our own country to which we should send consumptives and other sufferers for the winter months in preference to the much vaunted resorts in the South of France. Hastings, the Undercliff, Bournemouth, Falmouth, Torquay, Penzance, Marazion, and other names readily suggest themselves. For the present we will limit ourselves to the first on this list, as being nearest to the metropolis, and the oldest in point of reputation as a health resort.

Hastings directly faces the Channel, and has an aspect to the South and South-West, while it is sheltered by the range of hills (commencing at the summit of Castle Hill, and stretching away westward) which hem it in on the land side from the bitter North, North-East, and East winds, which are so inimical to all invalids, but especially to those suffering from pulmonary complaints. The effect of the mild winter climate thus produced is evidenced by the remarkable luxuriance of vegetation at Hastings. The beautiful shrub, euonymus, grows freely in every direction, in the open air; the veronica, acquiring a height of four or five feet, blooms unprotected nearly every winter; while the camelia, passion-flower, and many other delicate plants flourish out of doors to an extent never known in less favoured spots.

We learn from a valuable and complete Meteorological Report, drawn up by a medical practitioner in Hastings, Mr. Colborne, F.M.S., that one chief point for notice in the climate of this health resort is the remarkably small range of shade temperature. In Hastings during the two years, 1881 and 1882, the range was only 9·9; while in Ventnor it was 10·6, and in Torquay, Bournemouth, and Brighton the range of shade temperature was between 12·0 and 13·0. As regards the temperature during the winter months (December, January, and February), Mr. Colborne gives a table for four successive years, showing a mean of 39°. The average rainfall yearly is slightly more than 32 inches.

Bright sunshine recorded at Hastings during an entire year amounted to 1824·7 hours, as against only 1194 hours registered in London during the same twelve months. In fact, Hastings during the period referred to was visited with the greatest amount of sunshine, as compared with all other British Meteorological stations possessing sunshine recorders; and this superiority over other places where observations were made was more particularly shown during the winter months—a season at which it is most important in cases of consumption and various other pulmonary affections.

* The object of this series is to direct attention to the merits of different British Health Resorts, too often overlooked and neglected by persons who are put to much expense, trouble, and loss of time, in visiting Continental Spas, instead of availing themselves of the facilities open to them in their own country. The following places have already been described:—No. 1, Swanage (with illustration), *HYGIENE*, May 13; No. 2, Lowestoft (illustrated), June 16; No. 3, Clacton-on-Sea and Walton-on-the-Naze, July 7; No. 4, Yarmouth (with illustration), August 4; No. 5, Ilfracombe (illustrated), August 18; No. 6, Cromer (illustrated), August 25; No. 7, Malvern, October 13; No. 8, Cornwall, November 3.

From the foregoing remarks it will be seen that the great advantage presented by the climate of Hastings is its equability. Although the average temperature is higher in winter than at most other places, still visitors there must not expect a markedly high degree of temperature. The advantages summed up briefly are:—1. A smaller daily range; 2. A larger amount of bright sunshine; 3. Moderate humidity; and 4. Protection from cold winds.

Dr. Theodore Williams, in his work on *The Influence of Climate in the Treatment of Consumption*, gives the results of winter residences, of three months' duration in the case of 243 consumptive patients at the following health resorts, Queenstown, Cornwall, South Devon, Torquay, Ilfracombe, the Isle of Wight, the Channel Islands, Bournemouth, Bognor, Brighton, Worthing, and Hastings and St. Leonards. Of these different localities, Hastings comes out at the head of the list, both as regards the large percentage of improved, and the small number of worse, cases. Next in order comes Ventnor, and after that place Bournemouth, third in respect of favourable results.

So far it will have been seen, we have spoken of Hastings as a winter health resort; but the same eulogistic terms would apply to the more sheltered parts of St. Leonards. Indeed it is a difficult matter for any one not thoroughly acquainted with the local topography to state positively when he is in Hastings (as originally defined), and when in St. Leonards. Hastings, at the sea front ends at the hospital, a handsome building erected in 1887, at the cost of 24,000/., opposite to the pier entrance, and St. Leonards commences at Verulam Place, where the Grand Hotel is situated. The two places, formerly distinct and under two separate jurisdictions, are now united for municipal and other arrangements, and the whole borough is placed under the Hastings Corporation.

Hastings and St. Leonards are especially fortunate, for these watering places are in season all the year round, so to speak. No sooner do those persons who made them their winter residence begin to leave them than spring visitors show themselves, and ere long the summer season is in full swing.

With the exception of a brief period in the height of summer, the temperature of Hastings generally is not excessively hot; indeed, it is cooler than any other places, owing to the prevalence of cool breezes from the sea. The principal wind during the months of June, July, and August, blows from the South-west, and traversing a large expanse of the sea before it reaches the land, it is cooler than the land atmosphere, and con-

sequently serves to moderate the heat in these three months, usually the hottest of the year. In fact, as was demonstrated by the late Mr. Savery, a surgeon at Hastings, the hotter it is inland, the cooler relatively does Hastings become, as the air, being more rarified over a large expanse of country, requires a large amount of cold air from the sea to replace it. July is the hottest month, and the average temperature of the ocean in the latitude in which Hastings is situated is then 60°, according to Maury, the best authority on this subject. There is thus often a difference of 20° or more between the temperature of the atmosphere far inland and that of deep sea water. Hastings, being placed on the coast, at the line of junction of the two, enjoys the advantage of the tempering sea breezes. Returning to Mr. Savery's figures let us take the summer of 1859, an exceptionally hot one throughout the whole island, for example, and compare the temperature at certain places. On July 13th, in London, the extreme heat of 94° was registered in the shade: at Guernsey and Derby 83° were recorded; at Torquay, Apsley (Bedfordshire), and York 82°; Hastings marked lower than the record from any other meteorological station, viz., 75°. On August 12th, in another year noted for high temperatures, the thermometer registered at Exeter 84°·5, at Camden Town (London) 89°·5; and at Hastings 70°·2. Numerous other records in various years establish the correctness of Mr. Savery's conclusions.

It would be difficult to find anywhere a place more attractive in its general character and in its surroundings than the combined towns which form the subject of this article. An uninterrupted sea front of three miles, lighted after dusk with electric lamps, affords ample scope for exercise and recreation close to the water's edge; there is an excellent pier, and the country in the vicinity of Hastings is remarkable both for the beauty of its scenery and the historical associations of the many places of interest within easy walking or driving distance. An inspection of the ruins of the old Castle, with the magnificent view to be obtained from the summit of the hill on which they stand, 200 feet above the sea level will repay the trouble of performing a somewhat difficult ascent.

Battle, taking its name from the ever-memorable encounter, known as the Battle of Hastings, between the Saxons under Harold, and the Normans led by William the Conqueror, is six miles from Hastings, and can be readily reached by rail or by road. The remains of the Abbey are very fine. Near to Battle are Crowhurst, famous for its ruined Oratory and old yew-tree, and

Normanhurst Court, the seat of Lord Brassey. At Pevensey, some twelve miles from Hastings may be seen portions of a Roman city, Anderida, held, after the Romans had abandoned this island, by the Britons, until it was taken by the Saxons in 491, when a wholesale massacre of the inhabitants took place; next, at the period of the Norman invasion, the conquering forces occupied it and converted part of it into a castle, whose name figures frequently in the history of those times. Other castles near Hastings are Bodiam, the remains of which are remarkably perfect; Hurstmonceux, the first brick castle erected in this kingdom and also in good preservation, although it was built shortly after the battle of Agincourt; Camber castle, near to Winchelsea, which, like Rye, is a quaint town, full of reminders of England's past.

In the matter of public amusements, hotels, shops, and other things which go to make up the sum total of human desires and comforts, Hastings stands in the front rank of watering places, and in every respect has grown with the growth of its population. This was under 3000 in 1801; it progressed from 29,000 in 1871, to 52,340 in 1891, and the number of inhabitants must now be nearer to sixty than fifty thousand. If the shade of Dr. Baillie, a London physician of considerable repute "when George the Third was king," could revisit the place which he was the first to draw attention to, in 1790, as a desirable health resort, on account of its remarkably-sheltered position, he would find it difficult to recognise in the present Hastings the insignificant village of a century ago.

Since writing this article, we have received the report of the Medical Officer of Health, Dr. A. S. Wilson, for the quarter ended September 30th last, in which it is stated that the general death-rate was only 11.75 per 1000, per annum, and the zymotic death-rate only 1.75 per 1000 per annum, the former being little more than half the average rate, and the latter less than one-third of the average rate for the same three months in the thirty-three largest English towns.

*THE NATIONAL INSTITUTE OF HYGIENE,
WITH WHICH IS INCORPORATED THE
ANTI-ADULTERATION SOCIETY.*

It has been decided by the Joint Executive Committee to amalgamate these two Societies; seeing that they have cognate objects affecting the public health, and that the working expenses would be materially diminished by having the same offices and staff. Further, the cost to individual members would be reduced, as one payment would entitle the subscriber to the benefits and privileges of both Societies.

The aim and scope of these Societies are already well-known, besides which they are indicated by their titles.

There are various existing sanitary associations, but all of these are of a sectional character, and practically limited to class membership; so that, while fully recognising their great usefulness in their respective spheres of operation, the Committee of the National Institute believe that the rapidly growing appreciation of Hygiene (in which comprehensive term is included everything which tends to the promotion and maintenance of health, whether of the individual or of the community) has created a widely felt requirement for the establishment of a national association, which, not being limited to any particular class, can enrol amongst its members all who are interested in its objects.

It is proposed to advance the study and dissemination of sound sanitary knowledge by the following means:—1. Periodical meetings for the reading of papers and the discussion of hygienic questions, to which meetings members will have the privilege of introducing friends; 2. Lectures on hygiene, in different parts of the kingdom, by lecturers accredited by the National Institute of Hygiene; 3. Annual exhibitions, either in London or some large provincial town, of new inventions and other articles of hygienic interest and importance, having relation to public health, house-building, sanitary engineering, ventilation, food, beverages, &c.; at these exhibitions prizes will be awarded for the most deserving exhibits; 4. The establishment of a hygienic museum and library.

The membership of the National Institute of Hygiene will be open to all eligible persons, ladies as well as gentlemen, subject to election by the Committee. Subscription, 1*l.* per annum, payable in advance, or 5*l.* donation, constituting life membership.

N.B.—Subscriptions now paid will extend to December 31st, 1894.

Members will be entitled (1) to free admission to all meetings, lectures, and exhibitions; (2) to receive weekly, post free, a copy of the leading sanitary journal, *HYGIENE* (the usual subscription to which is 6*s.* 6*d.*) with the proprietors of which paper the Committee have made advantageous arrangements for the use of that periodical as the organ of the National Institute of Hygiene; and (3) to analyses and reports upon all articles of food, &c., by specially retained analysts, at greatly reduced fees.

Application for membership should be made to the Honorary Secretary, M. B. d'Almeida, Esq., F.R.G.S., 37 Oakley Street, Chelsea, s.w., until removal into the new offices.

BATHS.

By PROF. T. ROGER SMITH, F.R.I.B.A.

(Concluded from page 373.)

TURNING now to the other part of an establishment of public baths, we find a provision of warm baths, similar to that familiar appliance for bathing now rarely absent from any good private house, the ordinary warm or slipper bath. This name was, I believe, given at a time when it was often customary to cover the small end of the bath, so as to produce something not at all dissimilar to a Brobdignag slipper. We will use the name, as it is distinctive, though not now quite descriptive. It is at least better than plunge bath.

The slipper bath varies between 5 ft. and 5 ft. 9 in. in length, and is always wider at the end intended for the shoulders. An average bath is about 2 ft. wide at the top where widest, and slopes down every way; and when filled sufficiently for comfort will generally be found to contain not less than twenty-five gallons of water, and often much more, reaching sometimes to fifty gallons. Usually about one-half of this quantity will be hot water, though this depends on the temperature at which the hot water is delivered.

A great deal of ingenuity has been expended upon improving and cheapening slipper baths. The best possibly are of earthenware, enamelled; copper enamelled are very much used, as are iron and zinc. Marble can also be used. At the brine baths at Droitwich, baths of teak are largely employed, and they are there preferred to those of any other material, partly on account of their retaining the heat, and partly because they do not feel at all slippery. I am told there is no difficulty in keeping them perfectly clean.

Where it can be afforded every such bath should have an independent dressing-room, and it is often of advantage for the bath-room to have two dressing-rooms, one on each side. Suitable dimensions for the bath-room are about 10 ft. by 7 ft. 6 in., and for the dressing-rooms 10 ft. by 6 ft. 6 in. In a room of this size the bath should stand clear of walls at either side. In cool or cold weather these rooms should be heated, and if the dressing room can have a little fireplace and a small open fire, it adds to the sense of comfort. A hot closet for keeping towels, &c., hot and dry, is a desirable adjunct to any complete set of slipper baths. Hot and cold water is, of course, laid on to each bath, and the attendant's duty is to fill the bath and bring it to a proper temperature.

When baths for the many are constructed the above

programme is too luxurious. One compartment must then do duty as bath-room and dressing-room. The minimum size for such a room is 6 ft. by 5 ft. 6 in., but a little more space is very desirable. The bath fittings are usually so arranged as to give the control of the hot and cold supply to the attendant, who will add more of either from the outside if called. The floor of the bath-room should be covered or partly with open lattice work, to keep the feet of the bathers dry. The enclosure of the bath-rooms may be formed of sawn slate or even of galvanised and corrugated iron in wooden framework; and it is important that the cocks and valves should be strong and well made and asbestos-packed, as there will be much wear and tear.

It must be admitted that while the operation of the Baths and Washhouses Act has brought a means of bathing within the reach of large numbers of people, it has not gone far enough. I believe it has been the experience of the managers of many of these establishments, that they are not frequented to such an extent as to make them self-supporting; and it needs no long consideration to see that the prices charged, though very moderate even if they reach the maximum fixed by the Act, do not place the bath within the reach of every class of working people; while the mere fact that these establishments must be on a considerable scale, and therefore cannot be very close together, removes them from the easy access of some of those who would use them if they could.

Can we bring the bath nearer to the doors of the people, and can we give them a cheaper bath than anything accessible at present?

In London and other crowded towns and cities I have no doubt that simple, cheap, and accessible bathing establishments, formed in crowded neighbourhoods, set up as a rule in existing buildings, and adapted to the wants and the purse of the crowd, would be popular and largely used; and my impression is that they could be made to pay their expenses, and possibly to yield a profit to those who established them. If so, few better openings for practical benevolence seem to exist than the multiplication of appliances of this sort under prudent and careful direction, and I wish the subject may attract the attention of philanthropists.

Returning to the question of cheapening baths, a practical attempt to bring a thorough bath within the reach of the million—that is to say, to give a good warm bath for a penny—was described by Mr. C. C. Walker, of Lilleshall, at the Worcester Sanitary Congress. I have had an opportunity of visiting Mr. Walker's baths, and

though I shall not attempt to reproduce his technical description, which is already in print, I will briefly describe what I saw. In a modest, but perfectly neat, clean, and quiet brick building put up for the purpose, I found a range of bath-rooms, each 8 ft. by 4 ft., all opening out of a paved corridor. Entering one of these the would-be bather, who is probably from the adjoining foundry, and black with the dirty work he carries on there, or perhaps a still more gr'my collier from one of the neighbouring coal-pits, finds a capacious inviting-looking circular pan near the ground at the back of his compartment, and two taps, one of cold and one of hot water, with a stool, soap, flannel, and brushes, all ready for his use. He is directed, after undressing, to half fill this pan with the warm and cold water laid on, to the warmth that suits him and then to give himself a regular good wash in it. When he has soaped, and splashed and rubbed to his heart's content, he can stand up in the pan, where close above him is a large copper rose. Pulling a chain, marked "warm," a shower of light warm spray gently descends, and streams over his shoulders and chest, or head if he likes, for it is mild and harmless. Another pull enables him to mix cold with the warm, and it is recommended to the bather, after thus cooling himself down, to finish off with a cold spray. This arrangement, simple, sensible, and pleasant, has been found immensely popular among the foundry men, and they have admission at a rate that is almost nominal. The outside public are admitted to this bath, which may be appropriately termed the Walker bath, and described as a "soap and spray bath," for a penny; this entitles the bather to a towel, but a piece of soap is a halfpenny extra. Mr. Walker believes that this penny fully meets the expense of his bath, but then there are exceptional circumstances in his favour, both as to initial cost and working cost. However, that may be, there is no doubt that a soap and spray bath of the Walker type can be given more cheaply than a slipper bath, especially if it can be combined with some other establishment as, for example, a swimming bath. The points in its favour are that it affords an opportunity for a thorough good cleansing wash; that it consumes much less water than a slipper bath (the usual quantity used being found to be about eight gallons of warm water and a smaller amount of cold); and that considerably more baths can be given in a day. A slipper bath is usually detained half-an hour by each bather, a Walker bath only twenty minutes; so that in a day of, say ten hours, thirty of the Walker baths could be given in each bath-room as against twenty of the slipper baths.

Persons who manage warm baths, have constantly on the women's day applications from women who bring two or perhaps even three young children, and desire to give them a good wash, usually stipulating that they shall have only to pay for one bath though they occupy a bath-room a long time. For this kind of family bathing Mr. Walker's bath seems particularly well adapted.

It appears to be not too much to hope that these appliances may be introduced in the humbler class of private houses, where a slipper bath would be rather too elaborate and expensive. A bath closet eight feet by four, floored and lined with Portland cement, could be easily constructed and takes very little room, the pan, the spray, and the cistern to supply the warm water are simple, and a ready circulation of hot water either from the kitchen range or from a small tubular boiler and stove for the purpose, is not very costly, while the whole would afford the opportunity of a healthy and a pleasant bath in many a house of moderate pretensions, occupied by artizans or persons a little above the artizan class.

Mr. Walker's plan is not, however, the only one that must be brought under notice, nor do I claim for it that it is the best cheap bath for all classes and under all circumstances.

In the German barracks a spray bath is adopted which is the invention of Mr. David Grove, an engineer, holding a government appointment in Germany. The essential points in this invention are that a large cistern is fixed at a level considerably above the floor of the bath-room, and simple means are provided for warming the water in this cistern and maintaining it at a temperature of 95°. A series of open bathing compartments, each 3 ft. 3 in. wide and 5 ft. 8 in. high, occupy the middle of a large room. The men undress at the sides of the room, and enter the compartments in detachments. In each compartment is a spray fed from the warm water cistern, and all are turned on at one time and shut off simultaneously. The sprays are oblong, perforated with fine holes and fixed slantingly, at such a height and at such a slope that the jet of spray falls on the neck or shoulders of the man standing in the compartment and not direct on his head unless he bends down for the purpose. The spray is continued for 3 to 3½ minutes; and it is stated that with 18 bathing cells 300 soldiers can be bathed in an hour, and that the quantity of water consumed for each man is 15 to 20 quarts. The men are required to take soap with them and use it. It is claimed that this arrangement is well adapted for public institutions, schools, &c., as well as for army use; and I understand

that it has been more or less employed in such places in Germany.

Another spray-bath has been of late introduced, and has been found successful. It is due to the ingenuity and skill of Mr. E. A. Reynolds. As I have seen it, the bathing apparatus is contained in a kind of cabinet of sawn slate about 2 ft. 6 in. square and 7 ft. high, with glass doors. The bather, on entering this and pulling the proper string, finds a number of fine jets of warm water directed on him from the sides, the floor, and from the ceiling. He can control the temperature of the jets; and when they have played on him for a sufficient time, he shuts off the spray and withdraws. It will be seen that here, as in the German plan, there is no *tub*, and that no soaping will be easily possible, so that probably the bath, which is said to be extremely enjoyable, will be popular with people whose pursuits do not cover them with dirt and dust. The water consumed for one bath is said to be, as a rule, three to four gallons, and the bather does not remain long in the compartment.

It will be manifest that the spray bath, pure and simple, is pretty sure to be more economical of time and water than the soap and spray bath, and there are some situations where this economy is of importance and will turn the scale in its favour. But for operatives who want a thorough wash, and to have that wash in quiet and comfort, the Walker soap and spray bath seems by far the best hitherto introduced, and it will, I trust, meet a real want.

My intention is not, however, to advocate any one plan, still less to assert that the limit of improvement has yet been reached, but to point out that the means of putting a good bath within the reach of that large section of our community, who can only afford to pay the lowest price, are actually at our disposal. There are none of our fellow-subjects who more need a bath, or will be so much benefited by being able to obtain one. If we can largely extend to them and others the means of cleanliness, we shall promote health, decency, comfort, and self-respect, in short, sanitation in its most comprehensive sense.

A Ridiculous and Untenable Exception from the law relating to the compulsory notification of infectious diseases is that returns cannot be obtained by the local sanitary authorities of cases of infectious illness in military barracks, police stations, and prisons; as places belonging to the Government are exempt from the operations of the Act. Red-tape objects to returns being made of cases of scarlet fever, even when it is of the form which may be readily communicated to other persons, and not merely the silly admiration of nursemaids for the bright uniforms of the soldiers.

PATENT ALIAS QUACK MEDICINES.*

By the EDITOR.

No. XX. (New Series.)—Our Correspondents and Critics; Silverton's Remedies for Deafness, &c.; "A Merciful Medicine, More Precious than Rubies;" Unqualified Practitioners.

"Man is a dupable animal. Quacks in medicine know this, and act upon the knowledge."—*Southey*.

"QUACKS in medicine" have had their feelings considerably disturbed by the revelations contained in this series of articles, if we may judge by the abusive letters, occasionally varied by threats of action for libel, that have reached us.

As regards the former, always anonymous, the attention we have bestowed on them has extended as far as our waste-paper basket; while the threats have been as vague and incomplete as the analyses published have been positive and definite. Whenever our angry correspondents think fit to put their threats into tangible, business-like form, we shall be prepared to prove up to the hilt every statement we have made; but we fancy that they are not so courageous, or so simple-minded, as Oliver Twist was when he asked for more.

* The widely spread interest in the original series of articles published under this title in *HYGIENE*, and the great demand for the two volumes of reprints (VOL. I. has run out of stock, and only VOL. II., price 1s., sent post free by our publishers for 14 penny stamps, remains in hand) have induced us, at the request of thousands of our readers, to bring out a new series, containing many fresh reports and analyses, in addition to those which have previously appeared. The following articles have already appeared in this series. It should be mentioned that the new volume of *HYGIENE*, VOL. VII., began on May 13th, 1893, so that subscribers to that volume will have the complete series.

No. I. (May 13th) included:—Patent Medicines; Patent Medicine Law; Mattei's Electro-Homœopathic Remedies. No. II.—(May 20th), Clarke's Blood Mixture. No. III.—(May 27th), Clarke's Blood Mixture; Chlorodyne and other Opiates. No. IV.—(June 9th), Revalenta Arabica. No. V.—(June 16th), The History of Patent Medicines; The Sequah "Prairie Flower" and Oil. No. VI.—(June 23rd), Holloway's Pills and Ointment. No. VII.—(June 30), Correspondence about Holloway and Mattei. No. VIII.—(July 7th), Concerning Advertised Testimonials of Clarke's Blood Mixture. No. IX.—(July 14th), Allen's World's Hair Restorer; Mexican Hair Restorer; Singleton's Golden Ointment for the Eyes; Rowland's Kalydor and Gowland's Lotion for the Skin; Mrs. Anna Ruppert's Skin Tonic; Mattei's Electricities. No. X.—(July 28th), Quack Advertisements and Testimonials; Mother Seigel's Syrup; Clarke's Blood Mixture and the late Dr. Swaine Taylor. No. XI.—(August 11th), Clarke's Blood Mixture; the Alleged Testimonial from the late Dr. Swaine Taylor, F.R.S.; the Obverse and the Reverse. No. XII.—(August 25), Quacks' Testimonials; Mother Seigel's Syrup; Clarke's Blood Mixture. No. XIII.—(September 1st), Beecham's Pills. No. XIV.—(September 15th), Pink Pills for Pale People. No. XV.—(September 29th), Warner's "Safe Cure." No. XVI.—(October 6th), Quack Advertising; Clarke's Blood Mixture and the Bogus Testimonial from Dr. Swaine Taylor, F.R.S. No. XVII.—(October 20th), Anonymous Abuse; Warner's "Safe Cure" and Medical Staff; A Quack Libel Case; Morison's Pills; Baillie's, Dixon's, Fothergill's, and Lee's Pills; Clarke's Blood Mixture Testimonials. No. XVIII.—(October 27th), Electric Belts; Nicholson's Patented Artificial Ear Drums; Mattei's Electricities. No. XIX.—(November 10th), St. Jacob's Oil; Mother Seigel's Syrup; Mattei's "Electricities."

In fact, some of the patent medicine people seem to have had too much already. One patent medicine company, to whose remedies (!) we gave gratuitous, though world-wide, publicity, held some time ago the annual meeting of its shareholders, and the directors had to explain that the great falling-off of receipts, and consequent shortness of dividends, were due to the influence of journalistic efforts (HYGIENE being indicated) used to stop the sales of their "marvellous medicines;" while, as regards another company, whose sheet-anchor is, as our published analysis proved, only saltpetre, the *Financial Gazette*, of a recent date, says of it that the shares have dropped so low as to be "practically unsaleable." Fifteen months ago, we first exposed the electric belt swindle, and we have lately seen that imposture come to grief.

Whatever the views of patent medicine makers may be, there is, at any rate, a remarkable consensus of opinion amongst the Press, and we are constantly receiving papers containing most favourable, indeed flattering, notices of "Patent *alias* Quack Medicines." We regret that our limited space prevents our acknowledging all of these; let one suffice as a specimen. Our excellent contemporary, the *British Medical Journal*, of October 1st, says:—"The editor of HYGIENE has for some time past devoted himself to the task of exposing the later forms of medical quackery; and from its interesting articles we learn all that the analyst has to tell us about these loudly-trumpeted preparations." The reviewer concludes as follows:—"As a contribution to our knowledge of the ways of quacks, it is to be welcomed; and we hope that all of our readers will make it their business to acquaint themselves with its contents."

Extracts from letters referring to our articles, from correspondents living in Great Britain and abroad, have been most numerous. Here also, we must ask to be allowed to give only a single specimen. An Indian justice writes:—"I have just finished reading, with great amusement and profit, your delightfully humorous and powerful *exposé* of quack medicines. I am glad to find that the articles continue to appear in HYGIENE, and I congratulate you upon the good work that you are doing." Many of our correspondents are medical practitioners, who inform us that they have succeeded in promptly and effectively opening the eyes of believers in this or that nostrum by giving them a copy of HYGIENE bearing on it.

Our quotation from Southey, reminds us of a curiously worded card which was put into our hands some time ago, in Fleet Street, near Ludgate Circus. It runs thus: "Admit the bearer to a free consultation on deafness

and noises in the head and ears, with the London specialist, the Rev. E. J. Silverton, now returned from a long tour through Glasgow and all the large towns of Scotland; Liverpool and all the large towns of England; also Ireland and Wales, where wonderful cures have been performed without operation or the use of instruments. The treatment is so gentle in its action, that little children are often saved from being Deaf and Dumb; and some who were deaf and dumb have been made to hear, and then taught to talk. Old standing cases are also successful"—the language is as mysterious as the gentle method—"indeed, it seems no more difficult to cure at seventy-two than at seventeen. The patient should not be discouraged because he or she has tried before and failed. Mr. Silverton has been in the *work* over twenty years"—this expression smacks rather of the parson than of the physician—"and has been eminently successful"—just now the cases were successful—"in all kinds of cases"; here followeth, to employ the clerical phraseology, a long list of ailments, which we need not inflict upon our readers. "If the case is incurable no hope will be held out, but valuable advice will be given to each sufferer"—"*given*" has a philanthropic sound about it—"and where there seems to be hope remedies will be recommended."

"CAUTION"—we must put this word into capitals, as on the card lying before us, although we could not spare capitals enough for all the words thus printed. "Caution," we say in more senses than one, knowing what we do; but we will give the "reverend specialist's" language, not our own. "Patients may bring one friend, but we have not room for four or five people to come with one."

It seems a singular thing that four or five people should even wish to accompany, much more that they should, unless strictly prohibited, accompany every individual patient to a consultation. We have been in practice nearly twice as long as the "reverend specialist" has been "in the work," and we can only remember a single instance of four persons entering our consulting-room with one patient. On this exceptional occasion, the patient was suspected to be of unsound mind, and the quartet accompanying him, being composed of near relatives, may possibly have regarded it a good opportunity for getting at his expense an indirect tip as to their own mental condition. But, surely, the "reverend specialist's" visitors are not all afflicted with weak intellect, though many might be suspected of a failing in that direction; rather let us suppose that they are

actuated by a burning desire to see him "on the job"—"in the work," we mean.

However, those who are shut out by the "reverend specialist's" imperative order need not, like Moore's Peri, in "Lalla Rookh," "at the gate of Heaven sit disconsolate." The "reverend specialist" has made arrangements for their supply with his patent pills and other patent remedies, which, similarly to his treatment of deafness, would appear to be equally well suited to the patient's case, whether seventeen or seventy-two years of age, or of either sex.

At any rate, we have our reasons for this supposition. We happen to know that some years ago, two people, a gentleman and a lady, consulted the "reverend specialist" in the same week, in consequence of seeing his advertisements in the newspapers; the gentleman seeking advice for rheumatism, the lady for sterility of many years' duration, a condition which she was anxious to have remedied, if possible. In accordance with the "reverend specialist's" rule that, "where there seems to be hope, remedies will be recommended," the lady received medicine as well as the gentleman. In the gentleman's case thirty-five shillings were demanded for what would be dear—commercially speaking—at thirty-five farthings. The pills and mixture supplied to each were examined by a public analyst, and in each case the remedies were identical in composition; the mixture being composed of water, chloride of iron, acetate of ammonia, and syrup of orange to flavour and colour it, while the pills were merely common rhubarb pills. Yet these very ordinary pills were described by the "reverend specialist" in one of his pamphlets as "a merciful medicine, more precious than rubies!" Presuming that this is a fair sample of what people get when they visit the "reverend specialist's" consulting-rooms, where he can be seen, with his "physician in attendance," it would be a difficult question to decide which is the more simple, the patient or the treatment.

The object of the "reverend specialist" in associating with himself a medical man holding some qualification or other is obvious—namely to evade the law relating to unqualified medical practitioners. But if the Medical Council, whose duty it is to protect alike the interests of the profession and the public, would exercise the power vested in them to its full extent, such a state of things could not exist as that of an unqualified man, boldly announcing himself to be possessed of special knowledge, far beyond that of others who have devoted their lifetime to medical study, and as boldly practising, under the cover of an alleged doctor, whose very name is sup-

pressed. Judges, coroners, and magistrates are properly severe when cases come before them in which unqualified medical assistants have attended patients; is not the case of a qualified medical man with an unqualified associate as his employer still more deserving of reprobation and punishment?

As a matter of fact, the Medical Council have it in their power to deal with cases of this nature, under the Medical Act of 1858. Indeed, they sometimes exercise this power. Two years ago, two practitioners were struck off the Medical Register, the charges proved against them being that they had carried on practice in conjunction with, or acted as cover for, unqualified persons.

In a pamphlet largely circulated by the "reverend specialist," it is stated that, prior to commencing his present career, he was a Baptist minister. But, "pressure of pastoral duties and the very wide range of his healing ministry"—wider, apparently, than his range of drugs, or acquaintance with the properties of those he did use—"compelled him to retire from either the one or the other. Mr. Silverton has retired from the pastor's office, to the great regret of many hundreds of warmly attached friends constituting the Church meeting in Exeter Hall,* Nottingham. It seems as sacred to give a man health as to bless him religiously; but often the one leads to the other." As the "reverend specialist" probably wrote this modest eulogium himself, we will content ourselves with expressing the sincere hope that not so large a number as the "many hundreds of warmly attached friends" have had reason to greatly regret his change of vocation.

* We are informed that the building bearing this high-sounding title is a small chapel; also, that the "reverend specialist" used to quack, while actively engaged in raising funds for it, or, as he would perhaps put it, was receiving the world's dross derived from the cure of bodies, while devoting himself to the spiritual cure of souls.

A Common Popular Delusion is that when the body of a dead or dying person is discovered, it must not be touched until the presence of a policeman has been obtained. Recently, in Gloucestershire a man committed suicide by hanging himself in an outhouse. In the course of the evidence at the inquest subsequently held, the fact was brought out that though nearly thirty people saw the man hanging, none made any attempt to cut him down, but went off, or sent messengers for the police and a doctor. The coroner expressed the opinion that had one of the spectators promptly interfered, the man's life would in all probability have been saved.

REVIEWS AND NOTICES OF BOOKS.

Über die Nothwendigkeit der Reconvalescentenhäuser für Kinder. (On the Need of Convalescent Homes for Children.) By Marianne Nigg.

Miss Marianne Nigg's pamphlet is a reprint of a paper read before the International Congress of Hygiene held in London, ably advocating the establishment as well as demonstrating the urgent necessity of institutions, where children convalescing after illness may be received and taken care of until they have regained both health and strength. It is almost superfluous for us to remark that we are completely of accord with the authoress on this point. Judging from the fact that she describes a convalescent home for poor children, established in 1888 by Mr. and Mrs. Herzmansky, as the first opened in Austria, we are much in advance of that country, as regards such institutions. Still, if there were many more in England, there would be no lack of suitable cases for them.

To-day is the attractive title of the new weekly magazine journal brought out under the editorship of Jerome K. Jerome. Amongst the contributors to the first number (November 11th) besides the talented and versatile editor, are Robert Louis Stevenson, Lloyd Osbourne, Bret Harte, Babington Bayley, and other known writers. The topics of the week are fully discussed under various headings. *To-day* has, evidently, as our American cousins would say, "come to stay," and we wish it many a prosperous To-morrow.

DIETETIC NOTICES.*

Rizine.—When this food substance, manufactured from rice, as its name indicates, first made its appearance, we said that it would not be long before it became a public favourite, and the result has amply verified our forecast. It is nutritious, appetising, and wholesome; and is applicable to many culinary purposes. Combined with flour, in the proportion of about six pounds of flour to one pound of rizine, it makes excellent light bread, keeping sweet and moist for a considerable period. Every housewife knows, or should know, the value of rizine flakes for puddings, cakes, or soup

* In consequence of the necessity for abbreviating our report of the Seventh Universal Food and Cookery Exhibition, held two weeks since at the Portman Rooms, Baker Street, various exhibits deserving of special mention were omitted. These will be, from time to time, included in our Dietetic Departments; as well as prominent exhibits at the Bakers and Confectioners' Exhibitions, at the Agricultural Hall, November 4th to 11th.

thickening; as well as rizine blanc mange creams, which, like the fruit jelly flakes of the same company, are deliciously flavoured. Amongst the novelties shown at the recent Food and Cookery Exhibition was the patent flake gelatine, an article just brought out by the Rizine Company. It is of high quality for all dietetic purposes for which gelatine is used; and we are informed that jellies made with it set in about half the time occupied when ordinary gelatine is employed.

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The *Gravy Colouring*, shown at the same exhibition by Messrs. Tomlinson & Hayward, is a useful adjunct to gravies and soups, greatly improving both colour and flavour.

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The *Optimus Coffee Extract* prepared by Messrs. E. Clark & Co., is superior to any other that we have tried; and the makers are fully justified in giving it the distinctive title, "Optimus." Apart from its dietetic excellence, it presents the great advantage, particularly applicable during the long, cold months which are coming, of being instantaneously got ready for use.

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The *Whaddon Chase Hunt Sauce* exhibited at the Food and Cookery Exhibition is a delicious, appetising relish, which can be taken with any kind of meat or fish. "As hungry as a hunter" is a common phrase, to denote readiness for a meal, and the manufacturers might promise a similar result from its use by those whose avocations or town-life prevent from sharing in the exhilarating exercise of the chase.

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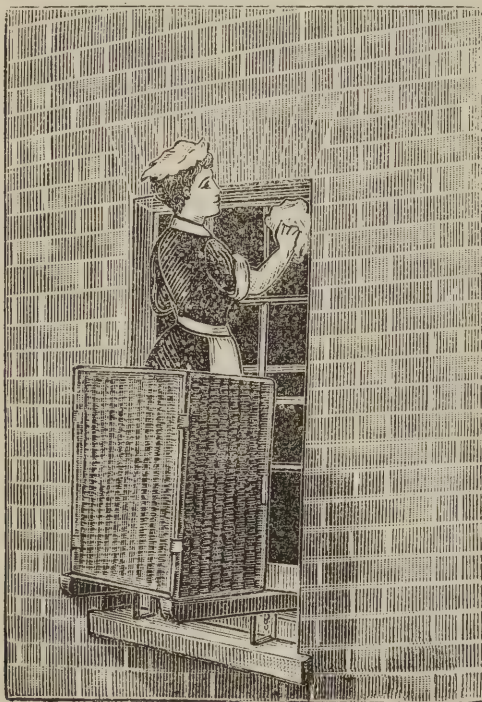
Hunting men are usually not averse to creature comforts in the shape of alcoholic beverages, judging by the numerous flasks which are produced at the covert side, whilst waiting for the magic "Tally-ho!" or when a temporary check occurs after a sharp run. It is, therefore, interesting to note that *Dalish's Whiskey*, which took the highest prize in its class at the afore-named exhibition, was unanimously pronounced by connoisseurs to be of good strength, fine in quality, and of excellent flavour and "bouquet." We recommend it to the attention of all drinkers of Scotch whiskey.

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Coombs' "*Eureka*" *Aerated Flour* has taken so many prizes at various exhibitions, and is so universally liked by ladies and their cooks that we need not say much about it, beyond the fact that it maintains the reputation which it rapidly made. It is cheap, because only a relatively small quantity is needed (no pun is intended, by the way), analysis shows it to be pure, and, as regards dietetic properties, we know a number of persons who, though they cannot commonly take pastry, find no digestive inconvenience whatever when Coombs' flour has been the farinaceous material employed.

NEW INVENTIONS.

Swain's Patent Platform for Window Cleaning and Painting.—At the recent exhibition at the Agricultural Hall, we noticed an ingenious and very useful invention by Mr. W. A. Swain, of Luton; which, if generally adopted, would completely do away with the numerous accidents causing fearful injuries and, not unfrequently, death in the case of domestic servants engaged in the, at present, highly dangerous process of window cleaning. There are hundreds of thousands of houses, especially in London and large towns, where the duty of periodically cleaning the windows, outside as well as inside, devolves upon female servants. Seated on the window sill, and sometimes even standing upon it, in order to reach the upper panes, the servant begins to pass the washleather over the window. Some unusual noise in the street below causes her to look round, and she becomes momentarily forgetful of her dangerous position, or she may make a false movement, or, having drawn the window down to fix herself more securely, she may be unable to reopen it without effort; the result may be, and too often is, that she is precipitated into the area, or on the railings, or pavement, and is thence conveyed to the nearest



hospital, where she may linger for a time, only to succumb at last to the injuries she has sustained, or—at the best—may remain for many months before is she discharged, crippled for the rest of her days and unfit to earn her future livelihood. Mr. Swain's excellent invention

obviates all risks of this kind. It consists of a small portable staging, easily passed out of an open window, and strongly secured by a cross-bar, stretching across under the window inside and firmly fixed to the inner wall, by the projecting ends of the bar. The platform rests on the window sill, and forms a thoroughly safe stage for any person cleaning the window, whether seated or standing. For females, the patentee has attached a folding wicker-work screen, which not only conduces to decency and comfort, but also conveys an additional sense of security. Our illustration will serve very well to show the difference between the new style and the old, which ought, at once and for ever, to be discarded.

The same apparatus will, of course, be found equally advantageous for men occupied in window cleaning, or painting the exterior part of a window frame. The cost is moderate, while the use of this platform does away with the necessity of using ladders.



Water Pollution and Cremation.—In a recent address on Cremation, Sir Spencer Wells, Bart., referring to the danger of pollution of water supplies through contamination from graveyards, stated that Herr Lindermann, in sinking wells below the bed of the Rhine, to obtain a supply for a neighbouring town, found the water so impure as to be unfit for use, and that the source of contamination was traced to another town twenty miles distant. Sir Spencer also mentioned that Prof. Groves, F.R.S, had stated that where there was drainage or infiltration of water from burial grounds, the water passing into wells or streams caused their contamination with easily decomposable organic (nitrogenous) matter, constituting a ready means of disseminating disease

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More Light!—The imports of Russian oil into India reached last year the large total of 67,000,000 gallons, having doubled in three years.

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Famine in Armenia is imminent, according to the *Daily News* correspondent. Wheat is selling at seven or eight times its normal price, and there is no prospect of diminution in price before another harvest. The worst feature of this matter is that there is not an actual scarcity of grain, large quantities being held by a ring of monopolists, including public officials.

* *

Influenza has appeared in an epidemic form in parts of Essex, as well as Birmingham, and elsewhere in the provinces. Up to the present it has not assumed the malignant form which characterised the epidemic of 1891, but much sickness has arisen through its prevalence.

NEWS AND NOTES.

The Priceless Boon of Anæsthesia cannot be fully estimated except by those who are old enough to remember the days when chloroform and other merciful anæsthetics were unknown, and when even the severest and most painful operations were performed with the patient in a state of consciousness to all that was going on around him. The extent to which anæsthetics are now employed may be judged from the statement made in the recently published annual report of St. Bartholomew's Hospital, that the following anæsthetics were administered 4,033 times during the twelve months, viz.: chloroform, 2031 times; nitrous oxide, 1,006; ether, 866; and nitrous oxide and ether combined, 130 times.

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"Attendance Included."—We are informed that a lady staying at one of the large West End hotels requiring medical advice, was attended by the medical officer to the hotel employes. Upon the doctor desiring payment for his professional services, after the lady's recovery, there was considerable difficulty in obtaining a settlement, as the lady drew attention to the words "Attendance Included!" at the top of the hotel bill, and asserted that she ought to have had the hotel doctor's advice and medicine gratuitously. We should recommend the doctor, before his late patient leaves London, to present her with the following lines.

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The Unpaid Doctor.

'When on the brink of danger, not before,
God and the doctor we alike adore;
The danger past, both are alike requited,
God is forgotten, and the doctor slighted.'

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Palmistry, or the attempt to tell character by certain lines on the palm of the hand, is one of the "fads" of the day; though why a palmist may see fashionable clients in a West End drawing-room at a guinea or so per head—we mean, per hand—while an old woman in the Eastern parts of London would speedily get 'run in' by the police, for trying to earn a shilling by fortune telling, we cannot understand. The faith in the "art," as palmists call their study, has been much shaken lately by a difference of opinion which has sprung up on the subject of a line upon the palm, described by the initiated as the "marriage line." One authority insists that when the marriage line curves upwards, the possessor is not likely to marry at any time; while other palmists, doubtless equally expert, assert that they have found many persons with the marriage line turning up, who have actually become married and—which is more important—are happy in the wedded state. And, why should they not do both? "Pity such troubles e'er should be, 'twixt Tweedledum and Tweedledee." And a still greater pity is it that sane persons should devote any time whatever to such utter nonsense.

Strange Remedies for Cholera.—During the panic caused in Tunis by the cholera, some extraordinary remedies were eagerly run after by the populace. A woman announced that she had been told by an angel, in a dream, that whoever drank of the water from her cistern would escape the malady. The result was that in two days twenty thousand people entered her courtyard to taste the charmed water; and such riots occurred amongst the throng, that the police had to interfere to prevent bloodshed. Another woman professed to keep away the cholera by making certain marks with charcoal on the foreheads of her dupes; and a third sold bits of coloured ribbon to be pinned on the clothes of those who were anxious to escape the epidemic disease.

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Paraguayan Tea is made from the leaves of a species of ilex (not the tea-plant), and, although not known in this country except as a curiosity, it is the most extensively used beverage in South America. Its active principle is a nitrogenous substance which corresponds with the caffeine of coffee and the thein of tea, and, like these, tends to arrest the rapid consumption of tissue, both by retarding decay and promoting renovation, thus relieving the feeling of exhaustion which is brought on by continuous mental or physical exertion. The mode in which the Paraguayans prepare the leaves is as follows:—The leaves are scorched and dried before they are separated from the branches brought in by the collectors; next, they are beaten, separated, coarsely ground by rude mills, and finally packed in skins or leather bags. The leaves are infused in boiling water in small tea-pots, and the infusion is taken by sucking it up through a bombilla, a tube with wire network or perforations at the lower end.

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Dublin stands greatly in need of thorough sanitary renovation. With a population of only a quarter of a million the average number of cases of enteric fever is one-fourth that of London, which possesses a population of about 5,000,000, or, roughly speaking, twenty times the number of inhabitants in the Irish metropolis.

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Nearly Three Hundred Thousand Accident Cases are treated yearly in the metropolitan and suburban hospitals. Many of the cases going to make up the large total were of a severe nature, such as fractured limbs, broken ribs, and injuries from falls or running down by vehicles.

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Swimming.—It has been suggested that the London School Board should acquire the disused floating swimming bath on the Thames, near to the Cleopatra Needle, for the purpose of affording instruction in the useful and hygienic art of swimming to the Board School children of the Metropolis. The Board are favourably inclined towards the project.

Strychnine as an Antidote to Snake Poïson has been used in upwards of one hundred cases by Dr. Mueller, of Yackandandah, in the colony of Victoria, with only a single failure, which, by the way, Dr. Mueller ascribes to not pushing the remedy sufficiently far. In some of these cases it should be mentioned that the patients were at the point of death when treated. Dr. Mueller's plan is to inject a solution of nitrate of strychnine in water, of the strength of one part of the former to 240 parts of the latter, with a little glycerine added. Although the injection may be made under the skin at any part of the body, the neighbourhood of the bitten part is preferable. Dr. Mueller says that the two poisons—strychnine and the secretion from the snake's fang—are "thoroughly antagonistic;" whence the tolerance by the patient of a quantity of strychnine, which, without the presence of the snake poison, would prove fatal.

ANSWERS TO CORRESPONDENTS

N.B.—Correspondents not answered in this column will receive private replies by post.

W. H. (Hull).—The sample of flour you sent is of decidedly inferior quality.

Mons. Didier (Paris).—Dr. Crespi pointed out in our pages, three years since, the excessively high death-rate of most of the French cities, as compared with our large English towns. It is, in great measure, due to the mortality from preventible diseases. We are glad to learn from our subscriber, as well as from the columns of French sanitary periodicals, that energetic efforts are being made in many parts of France to remedy this unsatisfactory condition of affairs.

Dubious.—Unfortunately there is no room for doubt on the subject. Warner's "Safe Cure" contains a very large amount of saltpetre, otherwise nitrate of potash, which would be most injurious in the affection your son is suffering from. For the future avoid quack remedies.

Coal Smoke.—It has been estimated by Professor Roberts that the great smoke cloud hanging over London weighs 300 tons, fifty of which are solid carbon, the other 250 hydrocarbons. Can it be wondered at, therefore, that in heavy states of the atmosphere, as when fogs prevail, large quantities of this carbonaceous matter is precipitated towards the surface of the earth, and inhaled by the unfortunate Londoners?

Mr. Blucker writes to offer a new solution of the "Worth a guinea a box" statement unblushingly made by Beecham. He suggests that what is meant is that it is worth that amount to have to swallow such rubbish, seeing that HYGIENE has exposed their composition to be soap, common aloes, and ginger.

W. T. (Manchester).—The reason why the Isle of Man has so mild a winter climate, although situated so far north, is that its shores are surrounded by the Gulf Stream, bringing water from warmer latitudes.

A Botanist.—The Chelsea Botanic Garden is vested in the Society of Apothecaries, one of the City Companies. It dates back more than 200 years, and was the successor of an older garden previously existing at Westminster. Evelyn speaks of it in his "Diary," under the date of August 7th, 1685, as the "Apothecaries' Garden of Simples, at Chelsea."

M. O. H.—1. You are wrong as to the Act of Parliament.
2. If you will forward your address, we will send you by letter the other information required.

Sewer Gas.—Our correspondent will find the following plan a good one for the detection of sewer gas in a room:—Saturate some sheets of white unglazed paper with a solution of acetate of lead in distilled or rain water, in the strength of half an ounce of the acetate to four ounces of water; let the paper partially dry, and then hang it up in the room supposed to contain the noxious gas. Should this be the case, the paper will soon become blackened.

A Student.—You will find *Practical Hygiene*, by the late Dr. Parkes, suit your purpose.

S. L.—Lime is used for softening hard water in bulk. When quicklime, previously slacked, is thus added, the result is the separation of all the lime or magnesia existing in the form of carbonates.

Dr. Newsholme (Brighton).—Thanks for your kind note.

EDITORIAL AND PUBLISHING NOTICES.

EDITORIAL.—The Editor begs to express his thanks to numerous correspondents, and to state that he will be pleased to receive any articles or correspondence coming within the scope of HYGIENE, books or pamphlets for review, reports of medical officers of health, items of general or local sanitary interest, newspapers (marked at the part to which it is desired to draw attention), &c.

ADVERTISERS are requested to bear in mind the greatly increased circulation of HYGIENE, with its weekly issue and reduced price. In addition to the large regular circulation, many thousands of copies are distributed annually to sanitary officials, medical men, private addresses, public libraries, clubs, hotels, &c.

HYGIENE,

A SANITARY WEEKLY PAPER.

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INFLUENZA: ITS HISTORY, NATURE, SYMPTOMS, AND TREATMENT.

THE sudden and alarming incidence of Influenza in various parts of the country, as diverse in their geographical position as in their social conditions, shows that this dread pest is once more upon us. At Blackburn in Lancashire, the epidemic is so rife that there is difficulty in finding a sufficient number of healthy work-people to keep the mills going; from Birmingham in the Midlands, it is reported that influenza is very prevalent, a fact which receives confirmation from the circumstance that, out of 69 officials employed in the post-office, no fewer than 29 are temporarily incapacitated; some parts of South Wales are suffering severely; Essex, Cambridgeshire, and Lincolnshire tell the same tale, while Newcastle-on-Tyne, Sunderland (where an esteemed member of the medical profession, Dr. John Whitehouse, has died from pleuro-pneumonia following an attack of influenza), and South Shields are affected to an extent not experienced in previous epidemics.

Russia, the country whence both cholera and influenza start to ravage Europe, has whole provinces stricken with the disease, and past experience points to the probability of Europe generally having to go through the same ordeal as in 1891 and 1892. In the early months of 1890, influenza invaded England; now it is quartered upon us, and, indeed, it cannot be said to have wholly disappeared at any time since the earlier date named. The deaths directly attributed to this cause, in London alone, were 650 in 1890, and 2336 in 1891, and 2264 last year. But,

as the Registrar-General remarks in his annual report, the 5252 deaths which occurred in the metropolis in these three years (the total mortality in the previous ten years was only 63) "by no means represents the whole mortality caused by the successive outbreaks. A large number of deaths really due to influenza are certified under other names, especially under bronchitis and pneumonia, and the deaths under these two headings in the three years numbered 56,070, whereas according to the previous decennial average they should have been only 47,120." The two diseases, bronchitis and pneumonia alone, are thus practically debited with nearly 10,000 deaths indirectly due to influenza, while many thousands more of deaths ascribed to diseases of the nervous system, heart affections, debility, &c., might have been traced back to the enfeebling effects of an attack of influenza, called by many, at its first appearance in 1890, the "New disease," and the "Russian Influenza."

These are fairly expressive terms in their way, but they are open to the objection that both are incorrect. Influenza is by no means a new disease; on the contrary, it is as respectable by virtue of its antiquity as it is formidable by reason of its complications. Its probable home is in the far East, Asia, whence we also derive another pest of humanity, the cholera, if any disease with such vagrant propensities as these two can rightly be spoken of as having any settled place of residence. In one sense, but that is social and not medical, it might be designated Russian. In Russia the Civil Service is said to be arranged somewhat in the following way, owing, it is alleged, to the ir-

cumstances that many of the officials owe their position to purchase rather than to merit, and derive the most certain part of their incomes from bribes extracted from their subordinates. If these involuntary contributions should fall short of the expected amount, something must, of course, be done to bring matters round to their accustomed conditions. The readiest mode which suggests itself is for those above him in rank to make the official who is backward with his *backsheesh* decidedly uncomfortable until he sees the error of his way. He becomes the scapegoat of the department, the blame of everything that goes wrong is laid to his charge, and, figuratively speaking, he is kicked on every possible occasion. Finally, if he should not have the money wherewith to satisfy the requirements of his superiors, the simple truth dawns upon his mind that the readiest mode of raising it, is to get it out of the man below him, by adopting a similar course of procedure to that which is causing him much trouble and annoyance. Thus, the merry passing-on game goes round. In like fashion influenza is passing along from one country to another with marvellous rapidity. Russia, the first European country it arrives at, transfers the dread pest to Austria, Austria to Germany, Germany to France, and "perfidious Albion" literally catches it from France in her turn, so there is some reason, after all, for dubbing the epidemic "Russian."

An affection corresponding in its leading characteristics with influenza, as known in modern times, was described by some of the writers of remote antiquity; the only point of difference being that it was more circumscribed in its area, this being due to the sparsely populated condition of most portions of the globe.

The first really extensive epidemic of influenza occurred a little more than one hundred years ago, viz., in 1782. It comprised the whole of Europe, not a single country escaping its ravages; it was estimated that more than fifty per cent. of the inhabitants of Europe were attacked during that year by influenza, and the fatality from it was very considerable.

Since 1782 its visits to our Island, previously rare, have markedly increased in frequency. In 1803, 1833, 1837, 1847, and 1857, it raged throughout this country, showing, as it is now doing, a somewhat erratic nature in its outburst. During the last week or two, for instance, the newspapers reported it, one day in a populous city, the next day in a thinly-inhabited village a hundred miles away, and so on. Apart from its epidemicity at recurrent periods, sporadic (that is to say, scattered and, for the most part, solitary) cases of influenza occur

every winter, but they do not attract any special notice, nor do they present the malignity of type almost always evident during epidemic seasons, in direct ratio to the extent and rapidity of the outbreak. Nowhere has the current epidemic given evidence of the opposite of this fact.

At the beginning of an epidemic, a small number of persons are reported to be ailing with catarrhal affections, from a mild form of influenza, in fact. Rapidly, the state of affairs is changed, optimists alter their note, and become painfully serious in their prognostications, while patients who are attacked by the malady are more severely affected as the epidemic grows in intensity, and the death-rate becomes significantly greater. It is consequently at the commencement of an outbreak that the sanitary authorities should prepare to resist the ruthless foe. They should, without loss of time, temporarily hire empty buildings of a suitable nature in eligible positions, and fit them up as emergency hospitals, and they should organize, in poor localities, an efficient system of house-to-house relief, both as regards medical treatment, and wholesome nourishing food. When it is considered that hundreds of thousands of persons throughout the country are suffering extreme privation, and want of good food and warm clothing, owing to the coal strike, it will be admitted that these precautions are especially requisite in the districts chiefly concerned.

It behoves the sanitary authorities, too, to see that the schools do not become central sources of infection. There is nothing so favourable to the rapid spread of epidemic diseases, such as influenza, as massing together in one room for several hours a number of children, all susceptible to infection, and many of them specially liable, owing to delicate health, inadequate clothing, or insufficient food.

We shall, doubtless, be met by two objections, one on the score of expense, the other based on the possibility of "worrying through," as the Americans put it, without going to any additional outlay. We are not alarmists, although we would cheerfully submit to be called by that or any other name, provided our timely note of premonition had some effect. "To be forewarned is to be forearmed." As to the expense, the country cannot afford to be niggardly; the best and cheapest insurance of the national prosperity, is a careful protection of the national health; and, even adopting for a moment the extremely improbable view that such precautionary arrangements as we have suggested might turn out superfluous, the money would have been well laid out in maintaining public confidence and minimising the

possibility of a general panic, such as has been witnessed here in former cholera epidemics, and abroad in the present outbreak of influenza.

A gentleman with whom we recently travelled in a railway carriage strongly deprecated what he was pleased to designate alarmist views, when we suggested to him that, in his capacity of member of a local sanitary board, he might do some useful service to the community which he represented by bringing before the board at its earliest meeting the desirability of preparation for the epidemic, should it come into his vicinity; and, finding that we were quite indifferent to his taunts, he entered upon the argumentative mood, and, pointing triumphantly out of the window, said, "I here, you see all the frost is gone, and the weather is becoming milder." It was to no purpose that we remarked that in 1890, at Frankfort-on-the-Maine, where 35,000 people fell ill with influenza in about a week, the epidemic reached its climax during two or three exceptionally mild days, and that thaws with rain and the concomitant atmospheric moisture had been recorded in the present and previous epidemics to be particularly favourable to the spread of influenza. Assuming the orthodox official attitude—a thumb thrust into each side of his capacious waistcoat—our acquaintance delivered his parting shot as he prepared to alight at his destination: "Pooh, pooh! I ought to know something about the right sort of weather for the poor," (besides being a member of the local sanitary board, he had been a *guardian* of the poor for twelve years), "and I am not an advocate for pampering them." We must not be hard upon him, for, passing his house a few days after, we saw two medical practitioners' carriages drawn up at his door. On inquiry, we learned that a sudden outbreak of influenza had appeared in his district, and that our obstinate acquaintance was one of the first persons stricken down by the disease. We hope that by this time he has fully recovered his health, and that when we next meet him we shall find him a wiser and (chastened by his mental reflections during illness) a more kindly-disposed man. As the proverb says, "Evil is wrought by want of thought, as well as want of heart." We would ask our readers for a moment to study the contrast between our acquaintance's condition and that of the "pampered poor" in an East End district of London, where, in the 1890 epidemic, a hard-worked (it is scarcely necessary to add, and underpaid) parish doctor was reported to have on his sick-list several hundred cases of influenza alone. Our acquaintance had two doctors, entirely at his call; was comfortably ensconced under his eider-down quilt, in a spacious, well-furnished bedroom,

carefully kept at a uniform temperature; and had tender, loving hands ever ready to minister to every want, to smooth his pillow and to supply every luxury ordered by his medical attendants. Let us change the scene to the East End sufferer. There he lies in a squalid little room, for which he pays as much rent as would secure him a decent cottage in the country; on the floor, save for the interposition of an old mattress, covered with some scanty bedclothes, and an ancient threadbare garment which has to serve the double function of overcoat by day, of counterpane by night; the grate fireless, or with just two or three faintly flickering cinders, the heat from which would not affect a block of ice placed for hours within two yards of it; some cold tea in a cup, put on a rickety old chair at the side of the patient. The poor fellow's wife or children have gone out to work, deeming themselves fortunate to have any, for the landlord's collector, with his myrmidon broker, will visit the court in two days' time, and the rent-money must be ready. The hospital is too full to receive the sufferer, who waits on, weary hour after hour, hoping that the parish doctor (the patient's five-hundredth share of a doctor) will arrive in time for the requisite medicine to be obtained at the parochial dispensary after some member of his family has come home.

We have referred to atmospheric conditions as having much to do with the development of an epidemic of influenza; there is, in point of fact, some particular state or contamination of the air, but, as Sir Thomas Watson, one of the ablest and most learned men who ever filled the chair of the London College of Physicians, pointed out in his instructive comments upon the influenza epidemics of 1833 and 1837, "What that state is, or what may be the kind of contamination, no one knows." And, despite the immense advances made in the study of germs and bacilli, we may add, no one knows (as regards influenza) to this day. The names applied in different countries help us but little to a solution of this question. Professor Cullen, the first British author of any note on this disease, styled it, in the medical Latinity of his day, *catarrhus e contagio*, catarrh arising from contagion,—and it has, since his time, being generally spoken of as epidemic catarrh. The French, with their graphic nomenclature, call the disease *la grippe*, from the tight hold which it gets upon its victims. The Italians, in a more vague, less matter-of-fact way, have named it the *influenza*, or influence, putting the cause for the effect; and this term, influenza, has grown into common acceptance amongst English people.

(To be continued.)

FREEHAND VERSUS UPRIGHT WRITING, HYGIENICALLY CONSIDERED.

By F. J. ALLEN, M.A., M.B., *Cantab.*, Professor of
Physiology in Mason College, Birmingham.

WHEN hearing opinions such as those so ably advocated by Mr. John Jackson, in his paper on the "Hygiene of Handwriting" (see *HYGIENE*, November 3rd, 1893, page 353), I am always inclined to retort, "If you remove one constraint from the writer's attitude, why impose another?" As to the absurdly constrained positions taught us in our early school-days—right elbow close to the side, penholder pointed to the shoulder, and so forth—few will be found to defend, and fewer to practise them. But while we abolish these, let us beware of adopting equally objectionable positions of an opposite kind. An upright, healthy, and comfortable attitude is of prime importance; but if we insist on upright letters, we may defeat this very object. Several times, from my childhood onward, I have tried to acquire an upright handwriting, but have always found the muscular constraint unendurable.

It is a mistake to suppose that our writing was made to slope to the right for æsthetic reasons. Æstheticism is better served by the upright mediæval characters, drawn with leisurely affectation in days when time was cheap. But when with the increase of commerce it was found necessary to write fast, men naturally fell into the easiest method, with sloping letters. *Sloping handwriting is thus nothing less than the result of evolution—the survival of the fittest.*

But the amount of slope is not a fixed quantity. Some persons find it natural to write with extreme slope (these are generally very rapid writers), a few have a predilection for the upright position, while the majority find a medium slope most comfortable. In fact, the proper amount of slope is a personal element, depending on the muscular and nervous organization of the individual's hand and arm. Let any person take up a pen in the way most comfortable to him, and apply it to paper, also in the most comfortable position. It will then be found that by moving *the fingers alone* the pen can be moved most freely along a certain line; that line will be the proper direction for his up-and-down strokes; it is usually on the slope, but not always. Further, let him move his hand to and fro by means of the wrist; or better, let him take the freest sweep that the movement of wrist and forearm together will allow without shifting the elbow, the direction of this movement will indicate the line on which his letters should follow from left

to right. It should be a main object with both teacher and pupil to discover, as early as possible in each writer, these two natural directions,—the up-and-down direction, and the direction of alignment. When they are once realised, the process of writing will become comparatively easy to the learner. If, however, an artificial direction of either kind be cultivated, it will be at the risk of inducing a constrained attitude, and sacrificing the individuality of the writing. In some instances the paper must be placed obliquely on the desk to accommodate the direction of alignment. This is a drawback, as it may tempt the writer to hold his head askew. But there is a similar drawback in cultivating an artificial direction of alignment, for it introduces the temptation to ensure correct alignment (against difficulties) by holding the head so that the eyes may look along the lines. How often we have seen this trick adopted by school children!

When one writes at ease, in any position of hand or paper, there is no need to hold the head askew, for the eye can learn to read a paper equally well, though held in any position, straight, oblique, or inverted.

As accessories in preventing constrained positions, I would advocate,—

1. Narrow copy-books, no wider than a half-sheet of note paper, so that the pupil can command the whole width without effort.

2. Letters of moderate size, with short loops. I remember how some of the great letters in my copy-books required two or three complete shifts of my childish hand to reach from top to tail of them.

3. Smooth paper, and broad-nibbed soft pens, in order to economise pressure and diminish friction. Our parents wrote better than we do; and one cause of the difference is that they learned with quills, whereas we learned with hard and sharp-pointed steel pens.

But after all, no precepts will avail to improve the writing attitude if the writer have any defect of vision. To refer only to defects of refraction,—in some children the point of distinct vision is less than five inches from the eyes; in others, no object is seen distinctly unless more than five feet off. It is futile to suppose that long-sighted and short-sighted persons can all write comfortably with the back erect and the eyes at a nearly uniform distance of about fourteen inches from the paper. I have often observed that long-sighted persons write a large bold hand, sitting with the head up; whereas short-sighted persons stoop over the paper and write small.

Summing up the above recommendations, I would

say,—Ascertain if any defect of vision exist, and let it be corrected by glasses if possible. Avoid unnecessary discomforts, such as scratchy pens and rough paper. Insist on an upright posture; but let the holding of the pen, the position of the hand, the uprightness or slope of the letters, their alignment,—yes, and even their form,—depend as much as possible on the organization of the pupil's hand and brain.

PUBLIC HEALTH REPORTS.

Kensington.—(Annual Report.)—This populous suburb of London indicates in a marked degree the growth of the West End of London in population and rateable value. At the commencement of the present century, in 1801, the number of inhabitants of the parish of Kensington was only 8556; the last census, 1891, showed that in ninety years it had increased to 166,308. As regards the rateable value of property, this was recorded in 1823 as being £75,916; seventy years afterwards, namely, in April of this year, it was more than £2,000,000. Since the Metropolis Local Management Act came into operation, in 1856, the number of inhabited houses and the population have practically doubled. During the twenty-one years in which Kensington has had the benefit of Dr. Orme Dudfield's services as Medical Officer of Health—he attained his official majority this year (April)—the population has increased from 121,000 to 166,700. The rateable value of property in Kensington is exceeded in the towns only by that of the cities of London, Liverpool, and Manchester, and in the counties by only ten of the largest, with their towns thrown in.

The births registered last year were 3718, the sexes being remarkably even—viz., males, 1867, and females, 1851, giving a birth-rate for the year of 22·3 per 1000 persons living. This was considerably below that of London as a whole, 30·9 per 1000; and, as a matter of fact, the birth-rate has been gradually dropping during the last twenty years.

The marriage-rate was 19·0 per 1000, being higher than in the three previous years, and higher than the marriage-rate of the whole metropolis, viz., 17·4.

The number of deaths in Kensington in 1892 was 2882, giving a rate of 17·2 per 1000, somewhat above the decennial average. Still, it compared favourably with the death-rate of the whole metropolis, which was 20·6 per 1000 in the same period, as well as with that of England and Wales, which was 19·0 per 1000.

As regards the infantile mortality, 972 children under five years of age died in 1892, being equivalent to 33·7 per cent. of the total number of deaths. More than half of these infantile deaths, namely, 587, occurred in the first twelve months of age. The greatly increased relative mortality of illegitimate children, as compared with those born in wedlock, was remarkable; the deaths of these poor little waifs being clearly traceable in many cases to improper feeding, and, above all causes, the lack of maternal care. The deaths of persons over sixty years of age were 880, equivalent to 30·5 per cent. of the total number.

The principal zymotic diseases—small-pox, measles, scarlet fever, diphtheria, whooping cough, typhus fever, enteric (or typhoid) fever, simple continued fever, and diarrhœa—caused 333 deaths. Of these no less than 109 were due to measles. The deaths arising from other zymotic diseases were as follows:—diarrhœa, 77; whooping cough, 63; scarlet fever, 36; diphtheria, 31; typhoid fever, 15; and simple continued fever, 2. There were no deaths during the twelve months from typhus and small-pox; we fear that, in respect of the last-named, this year's figures will come out differently, as a serious outbreak of small-pox (worse than it would otherwise have been, through neglect of prompt notification) is reported from Kensington while the current number of *HYGIENE* is passing through the press. Some time back, in last year, Dr. Dudfield took vigorous steps to check the spread of small-pox from districts where it was prevalent to Kensington, and his efforts were rewarded by success. We therefore have good reason to hope that the present threatening outbreak will be soon got under by similarly systematic action.

Speaking of measles, Dr. Dudfield writes:—"It is to be regretted that comparatively little care is taken by parents among the poorer classes to prevent the spread of measles. Not regarding it as a serious disease, considering it, moreover, to be as inevitable as teething, they naturally enough rather like to have all of the children ill at one time, and get the trouble over."

The mortality from cancer appears to be on the increase in Kensington, where it was accountable for 129 deaths last year, as it is, indeed, throughout the country generally. We believe, however, that the increased number of deaths registered as attributable to malignant cancerous disease is more due to increased care in diagnosis than is commonly admitted.

The number of cases of infectious diseases notified in Kensington during the twelve months amounted to 1182. The Notification Act of 1889 was unfortunately optional

as regards the provinces, but the large majority of the provincial sanitary authorities, both urban and rural, have adopted it. A certain proportion holds out, however; the most notorious offender in this respect, from the population point of view, is, we believe, Brighton. We fully agree with Dr. Dudfield's remark that "the time surely has arrived when the Act should be made compulsory for the whole kingdom, as it has been in London from the first." Optional sanitary legislation is usually bad, but when the legislation is partly optional and partly compulsory, as in this instance, the continuance of the anomaly is indefensible. Moreover, the system of notification has been found to work well, and the expense is comparatively trifling. Thus, in the metropolis last year, 45,842 cases of infectious disease were reported at a cost of £4666 15s. 6d. It would be impossible to calculate the amount of epidemic disease which the sanitary officials were able to avert through the timely warnings thus conveyed.

The work done by the sanitary inspectors during the twelve months ending March 25th, 1893, was, as in previous years, very considerable. Figures fail in such matters to give a full idea of the magnitude of the sanitary operations, and the length of time occupied by them, yet we cannot refrain from quoting some. Thus, the number of inspections and re-inspections of houses and premises was over 15,000; 2116 houses, premises, &c., were cleansed, repaired, and whitewashed; and 696 houses were disinfected after illness had occurred in them of an infectious character. Other sanitary operations were on a similarly large scale.

Although often giving rise to unpleasant and unhealthy effluvia, from the articles accumulated in them, "marine stores"—to give them the high-sounding name adopted of late years—are not scheduled in the Public Health (London) Act, 1891, as offensive businesses; though as the business of a rag-and-bone shop—the popular designation—has been held by the Court of Appeal to be of the same character as those scheduled in that Act, Dr. Dudfield thinks that it would be well if the County Council would see fit to add it to the list. Many years ago the Kensington Vestry made a request to the late Metropolitan Board of Works to treat it in that light, but the application was refused.

There are now 19 licensed slaughter-houses in Kensington; in 1873, the year before the passing of the Slaughter-houses (Metropolis) Act, the number was 48. It is satisfactory to learn that no new slaughter-house has been opened in Kensington since 1874, and we fully concur in the opinion expressed that it is desirable, in

the interests of public health, that at no distant date private slaughter-houses may give way to public *abattoirs*. They are apparently undergoing a process of gradual extinction all over London; for, when the Act was passed, in 1874, there were 1500 of these establishments in the metropolis, and the number has now dropped to one-third of that figure. This is partly due, no doubt, to the growth of the dead meat trade, but some of the reduction is due to the manner in which some local authorities, amongst which is Kensington, keep a watchful eye on the slaughter-houses, and oppose the renewal of the annual licenses wherever it is expedient to do so in the public interests. Cowsheds in Kensington have also been reduced in number, there being only 8 in that parish as against 23 in 1880; though here again, unfortunately, as in the case of slaughter-houses and dairies, no attempt has been made to utilise the services of the medical officers of health and the sanitary inspectors for purposes of inspection, the various local sanitary authorities having been ignored.

The removal of house refuse must necessarily be a heavy undertaking in populous districts, and it is consequently satisfactory to learn that nearly 50,000 loads were collected and removed from the 22,000 inhabited houses in Kensington, with only a few complaints—fewer, indeed, than when the work was performed by contractors instead of, as now, by the Vestry's own scavenging department. A constantly increasing difficulty is experienced, says the Report, in obtaining readily accessible "shoots" for the rubbish when it is collected, as Kensington, unlike Richmond, as recently described in the columns of *HYGIENE*, does not adopt the easy, but very objectionable, method of distributing it in contiguous districts. Looking at the future of this question, Dr. Dudfield writes:—"Speaking generally, I have little doubt that a solution of the difficulty of sanitary disposal of house refuse will be found in cremation, which I am convinced can, under proper conditions, be carried out successfully and without the creation of nuisance."

Amongst the important establishments of a sanitary nature which have sprung up in different parts of the metropolis of late years, public baths and washhouses occupy a prominent place, and it is interesting to learn the increasing extent to which those in Kensington are appreciated by the poorer class of parishioners. They were opened in 1888, and the total number, which in the following year was 79,029, amounted last year to 104,276. As regards poor people resorting to the institution to avail themselves of the facility for washing

clothes, the number in the first year after the public washhouses were started was 13,950; in the twelve months ended last March 25th, it was 46,843. This, too, was in spite of the fact that the building is situated at an inconvenient distance from some parts of the parish, an objection which would hold good in many other metropolitan parishes besides Kensington. This difficulty might be got over, as pointed out in the Report, by erecting smaller buildings for the same purposes in various localities readily accessible to the poorer inhabitants.

Dr. Dudfield's Report of 227 pages refers to other matters of general sanitary interest, such as the metropolitan sewage question, the London water supply, the Asylums Board, &c.; but as we shall have occasion shortly to deal with some of these at more or less length, we will defer their consideration until another period.

THE EMPLOYMENT OF WOMEN.—No. I.

THE Royal Commission on Labour has just issued a Blue Book of 352 pages, containing the reports of four lady Assistant-Commissioners (Miss Orme, Miss Collet, Miss Abraham, and Miss Irwin) on the conditions of female work in various industries in England, Wales, Scotland, and Ireland.

The instructions given by the Commissioners in March, 1892, mentioned the following points as those which were to be kept in view during the prosecution of the inquiries, viz.: (1) The difference in the rate of wages of men and women; (2) the alleged grievances of women; (3) the effects of women's industrial employment on their health, morality, and the home; (4) the causes of the exclusion, where it exists, of women from trades in which their work is not unsuitable. The method to be pursued was to make use of existing information contained in Parliamentary papers, &c., to visit industrial centres and obtain evidence from employers, employed, and other persons capable of giving information, and to subsequently embody the results of observation in a series of reports.

Miss Clara E. Collet commenced in London, after which she visited Luton, Birmingham, Bristol, Dudley, Walsall, Liverpool, and Manchester. While in Staffordshire she made inquiries as to the condition of female employment in the pottery district.

The London industries reported on are the following:—Tailoring, book-sewing, mantle-making, feather-curling, stay-making, silk-hat trimming, shirt-making,

jewel-polishing, gold-embroidering, wig-making, jewel-case making, artificial-flower making, fur-pulling, rope-works, indiarubber works, mineral-water factories, sweet-meat factories, and printing. Miss Collet also inquired into the condition, wages, &c., of female shop assistants, milliners, dressmakers, laundresses, and matchmakers.

As regards shop-assistants, their hours of business ranged from about sixty weekly in West London to seventy-five at the East End. This total of hours included the time allowed for dinner and tea, half an hour being usually given for dinner and rather less for the other meal mentioned. In many cases there is a liability to interruption during meals, and this circumstance, combined with the desire to get as much leisure afterwards for amusement or rest, is apparently responsible for a widely-spread habit of "bolting" the food (as one employer said) in a very short period. Such a habit, of course, would tend to produce indigestion and its concomitant evils, not likely to be diminished by the unwholesome practice, said by some of the witnesses to be prevalent, of consuming sweetstuff and pastry surreptitiously in the morning. But then it must be borne in mind that many of these shop-assistants are little older than schoolgirls, amongst whom such unwholesome diet is not wholly unknown; while the hurried meals and the insufficient rest would account in some measure for the craving for articles of this kind. Speaking of rest, we naturally come to the question of seats for shopwomen when not occupied in attending to customers—a matter of which we have often urged the importance in HYGIENE, and upon which we insisted strongly in our evidence before the Shop Hours Committee of the House of Commons. Many years' public hospital practice, and a mass of evidence obtained when we were on the honorary consulting staff of the Early Closing Association, have convinced us long since that the neglect of employers to provide seats for their assistants has more to do than any other single thing with the causation of the ailments from which shop-assistants, both male and female, but especially the latter, suffer. Miss Collet says that sitting accommodation for the shopwomen was provided in only four out of the twenty-three shops about which she procured information. We fear that this proportion is rather above than below the average. An objectionable custom prevails in some houses of business, though not to the same extent as formerly, of requiring all shop-hands to spend their Sundays off the premises. In respect of health and comfort, and, indirectly, of morality, it is particularly hard to compel a woman, on the only day when she could get complete,

continuous rest, to go out all day, without regard to the state of individual health or of the weather—possibly, too, not having a relative or real friend in London. The salaries paid to shopwomen are probably about one-third less than those received by men in similar occupations, but the latter are more useful in dealing with the heavier classes of goods.

As regards milliners and dressmakers, the evidence obtained showed that the principal grievances with these two classes were connected with overtime, shortness of time allowed for meals, defective workroom accommodation in the matter of ventilation and warming, and wages. Both trades are regulated under the Factory Acts, and, generally, the allotted hours are not exceeded, but there is a custom—more particularly in the London season—of working overtime, involving late hours in a close atmosphere vitiated by gas-burning; for which extra work the girls are often paid beneath the proper rate. In many instances of overtime the employers omit to give notice to the factory inspector. The ignorance on the part of the employed concerning the provisions of the Act is doubtless responsible for the impunity with which some employers commit breaches of it; and other methods than merely hanging the abstract of it in some practically inaccessible position should be resorted to, in order to make the workers acquainted with it. The wages of milliners are considerably higher than those of dressmakers, though their duties are less laborious; the latter class (outdoor hands) earn from 8s. to 25s. a week, the majority, however, being under 15s.

Although efforts have been made to bring laundries under the Factory Act, they remain still without the supervision which their inclusion would lead to. The majority of the proprietors of steam laundries express willingness, in some cases desire, for their establishments to be brought under the Act, but the small hand-laundry managers are opposed to this, on the ground that such an arrangement would injure their trade. It appears, too, that many laundresses work only four or five days a week. The average wages of washers are 2s. 6d. a day of ten and a half hours (excluding meals), and 3d. per hour overtime; ironers receive somewhat higher pay.

An inquiry into the condition of the female match-makers at various factories in London elicited the fact that cases of necrosis had occurred amongst the operatives during the past twelve years, although constituting a very small proportion as compared with the number of hands employed. Some time back there was a considerable amount of sensational writing in the press on the subject of this affection, "phossy jaw," as it is called by

the workpeople. The remedy rests with the public, as was demonstrated in an article in *HYGIENE* of June 17th on "Noxious Employments." If they would refuse to use any other matches than those made with red amorphous phosphorus (such as Bryant & May's "safeties" are made with), the employment of the dangerous fuming white phosphorus would die out, and with it would disappear the terrible affection, necrosis. Amongst 700 women permanently engaged in Bryant & May's factory in the safety-match and wax-vesta departments, not a single case of "phossy jaw" has ever been known.

Luton, in Bedfordshire, has long had a reputation for two staple industries—straw-plaiting and straw-hat making—in both of which female labour is used. The former industry has very largely fallen away, owing mainly to foreign competition—Switzerland, Italy, and even China having supplied plait for twenty years at low prices, so that plaiting is now carried on only as home work by cottagers in the district, at such unremunerative rates that a plaiter cannot ordinarily earn more than 1¼d. an hour. Besides competition, it should be mentioned that women can earn more by machining the foreign plait, and that the Luton manufacturers allege that the earnings would still be good if the plaiters did not adhere to old patterns, for which there is little demand, instead of giving their attention to new designs. Straw-hat making affords employment to thousands of persons, both in large factories and in domestic workshops. Two-thirds of the workers in the factories are between sixteen and thirty years of age; but in the home workshops many children are employed and the hours of labour are barbarously long. The wages received by the factory workers are from 4s. to 8s. in June and July; in other months they range from 14s. to 25s.

In Bristol there are numerous fields of work for females, the principal being the wholesale clothing trade, boot-making, corset-making, and the manufactures of cocoa and tobacco. In the first three occupations the rates of workshop wages rule lower than at Leeds or elsewhere, but the Assistant-Commissioner describes the workers as fairly contented, and the principal drawbacks and grievances seem to be as regards the defective factory accommodation in many cases, and an absence of effort for improvement on the part of the workpeople as well as of their employers. Much of the labour in these trades is done by home-workers, and at some of the clothing factories women are permitted to take work home in the evening. The Assistant-Commissioner speaks in terms of commendation of the appearance and general condition of the females employed at the large

cocoa works (Messrs. Fry & Sons), where more than 1200 girls are engaged, and at the Bedminster tobacco factory (Messrs. W. D. & H. O. Wills). Of the 1200 females at Messrs. Fry's works, 35 per cent. are under eighteen years of age, and 57 per cent. (rather more than half) are between eighteen and twenty-five years old. Their earnings average over 12s. a week, and the hours are reasonable. A similarly satisfactory state of things is reported at the Bedminster tobacco factory, where the sanitary and other arrangements for the operatives are of a superior character. When we wrote a special account of Messrs. W. D. & H. O. Wills' works some years back for *HYGIENE*, we noticed these very fully. Very few married women are employed at either of these two great factories, and at Bedminster no married woman with children is engaged until the matron has ascertained by a personal visit that the children will be properly taken charge of by relatives during the mother's absence.

The Birmingham and Staffordshire reports bring us to different trades altogether from those which have been described, except as regards the wholesale clothing manufacture carried on in Walsall and Dudley, and the cocoa works at Bournville, near Birmingham, belonging to the well-known firm of Cadbury Brothers. The Assistant-Commissioner is as full of praise of these as of the similar factory at Bristol. If workers in other factories at the Metropolis of the Midlands received only a part of the consideration shown by Messrs. Cadbury, the condition of Birmingham operatives would be greatly ameliorated.

Even to enumerate the trades of this busy hive would take more space than is at our disposal, and would involve an unnecessary amount of purely technical description. We shall, therefore, limit ourselves chiefly to the effect of occupation upon health. The Health Committee of the Corporation have effected much improvement in the condition of the workshops by vigorous action under the Factory Act, 1891.

It is somewhat singular that, notwithstanding the great variety of articles manufactured in Birmingham, there is not a corresponding variety in the work done by females, as many of the machines used in different trades are only varying applications of the same mechanical principle. "Stampers" and "pressers" employed in making pens, buttons, umbrella fittings, &c., are, according to H.M. Chief Factory Inspector, S. H. Knyvett, particularly liable to accidents—usually the loss of a finger, or of part of one—through working too rapidly, or having their attention diverted from the machine to something going on in the room. The brass-finishers

engaged in polishing or grinding solitaires show by the metallic dust on their faces and hair that a good deal of it gets diffused in the atmosphere; the same condition of things occurs as regards the ivory-button workers, and, as some of this dust finds its way into the lungs, it must be an unhealthy occupation.

Colouring laths and rods in bedstead-making exposes the women employed to a considerable amount of objectionable odours; but a much more injurious manufacture is that of iron-enamelling, in which the female operatives are constantly inhaling lead dust, and nearly all the girls suffer at some time or other from colic and other ailments. They used to refuse, the managers said, to wear any kind of respirator, probably more through ignorance than obstinacy; and the only precautions adopted at the date of the report were thorough ventilation and damping the brush on a wet sponge, one being provided for each worker. More recently, the Home Office has issued rules for iron-enamel works, requiring every employer to provide proper washing accommodation, suitable respirators, and over-all coverings, with hoods, to protect the workers; also to adopt efficient measures for the removal of superfluous dust, to provide a sufficient quantity of sulphuric acid drink, and medical attendance and medicine for any of the women contracting illness through their work, as well as to make arrangements where-by the operatives are not obliged to take their meals in the workshop.

The Staffordshire industries giving employment to women, described in the report, are harness and saddlery making at Walsall, the wholesale tailoring at that place and at Dudley (including a large number of outworkers amongst the miners' wives and families), and pottery-working at Stoke, Hanley, Burslem, and other towns constituting the Potteries.

The most unhealthy departments in the pottery works are those technically known as the "dipping" and "glazing" rooms. In the former, where only men are engaged, the ware is dipped into a liquid glaze containing lead; in the adjacent (glazing) room the dried ware is rubbed and smoothed, and the powder thus detached is often deleterious. Half-timers are frequently employed in the objectionable occupation of carrying heavy trays of newly glazed ware to and from the drying closets, so that they are exposed to very high temperatures, as well as to the inhalation of a large proportion of the glaze powder.

(To be continued.)

PATENT ALIAS QUACK MEDICINES.

By the EDITOR.

No. XXI. (New Series.)—Patent Medicines and Pious Language; the “Reverend Specialist;” Congreve’s Balsamic Elixir; Owbridge’s Lung Tonic; Lane’s Catarrh Cure; A Quack’s Certificate.

“’Tis not the many oaths that make the truth.”—SHAKESPEARE.

IN our last number we quoted, from probably Silverton’s own words, a description of the desperate conflict in the “reverend specialist’s” mind between his devotion to his pastoral work and a presumed call to medical duties. [N.B.—We are not referring here to the three-halfpenny stamp for Government duty on each box of quack pills.] If it were not bordering on profanity, in presence of such a noble struggle, we might have compared the “reverend specialist” with Garrick, as depicted in the famous picture of that actor hesitating whether to adopt Tragedy or Comedy as his sovereign queen.

We may here explain that the “reverend specialist” got over his difficulty by arriving at the conclusion expressed in the following unctuous sentence;—“It seems as sacred to give a man health as to bless him religiously; but often the one leads to the other.” The “but” somehow mars the force and the intelligibility of the sentence. “Blessing religiously,” too, reminds us of an anecdote of two sailors on board a ship which included a colonial bishop amongst its passengers. The bishop objected to the emphatic manner in which the simple sons of Neptune are wont to express passing sentiments; and the captain impressed upon the crew the desirability of controlling their feelings, or at least their language, during *that* voyage. The sailors were obedient to orders, and almost mute throughout the early part of the day, owing to the novelty of the restraint put on them, but in the course of the afternoon one of the men happened to drop a heavy marling-spike upon another’s foot; turning sharply round, the latter, catching sight of the captain and the bishop close by, roared out, “*Bless* you, Jack!” adding in an undertone, “you know what I mean.” Evidently, the injured sailor stood in little need of one of the “energisers” which the “reverend specialist” sells for about half-a-crown to any one willing to part with that coin of the realm; for not only does Silverton profess to cure deafness, even where all other remedial measures have failed, but he *energises* those who need it with his patent “energisers” at 2s. 6d., whilst his rhubarb pills (1s. 1½d. a box) are, according to his modest assertion, “a merciful medicine, more precious than rubies.” We must, however, leave the “reverend specialist;” we have

taken up too much valuable time, already, in exposing his nostrums, and when our publisher sees this article in print, he may blame us for giving gratuitous advertisements. However, he cannot say that we have reduced the receipts in that department, as there is an inexorable rule at the office of HYGIENE, as unyielding as the laws of the Medes and Persians, “No quack advertisements taken.”

Referring to the religious (?) tendency on the part of patent medicine proprietors, we may remark that one of the largest firms of that class heads its monster advertisements with a quotation from Deuteronomy: “For the blood is the life.” The reason for dragging in a Scriptural quotation in this manner is not very evident, except that it be for the purpose of drawing attention, just as the Sequah men draw teeth. Besides, having regard to the fact that Clarke’s Blood Mixture contains a large quantity of iodide of potassium, and that this drug has a powerfully depressing action, making it most unsuitable and improper for administration to the sickly and the debilitated (to whom it is, nevertheless, strongly recommended by the makers), we think that a more satisfactory quotation could have been taken from a verse which occurs later in the same chapter, “Pour it on the ground;” at any rate, this would have had a certain cautionary value, and have suggested some safer way of dealing with the Blood Mixture than swallowing it.

Though the Blood Mixture makers are so pious in language, they are not so conscientious in action, for they continue to publish a testimonial which we have shown to be false and no more written by the late Dr. Swaine Taylor than by ourselves.

As for “God’s blessing,” patent medicine people use the expression so freely (to such an irreverent extent indeed as to savour of blasphemy), that one is almost led to imagine that they regard it as included in the purchase, when they buy the Government duty three-halfpenny stamps at Somerset House.

We have lying on our table a book which is supposed to treat of consumption and other nest diseases. At all events the names of these affections appear in gilt letters upon the cover; but on opening it we find only two dozen pages, with frequent digressions in praise of the Balsamic Elixir, concerning these important affections; while about 150 pages are stuffed with testimonials. Yet, in what may, by a straining of the phrase, be termed the technical portion, the author finds himself obliged, at page 22, to utter the plaintive excuse for not describing asthma, that “the limits of the present work will not permit me to enter minutely” into such matters. And

as for the testimonial portion, occupying six-sevenths of the whole book, he says, "Other extracts might be given, but want of space forbids." What a pity it is that his modesty stood so much in his way that he did not utilise the odd twenty-five pages for testimonials; there would have been no loss to science, and the book would have had just as much weight (eight ounces for twopence) when "gradually diffused," through the medium of the post.

On opening this book, which purports to be written (with the exception, we presume, of the 150 pages of testimonials) by one George Thomas Congreve, of Peckham, we find (as we felt sure we should) "God's blessing" figuring on the very first page; G. T. C. expressing the hope that "by gradually diffused knowledge"—we once heard an advertising agent and bill-sticker described as a "professor of *applied* literature," is this the sort of gradual diffusion meant?—"a just appreciation of these means and their principles of operation will so arise that, with *God's blessing*, the benefits accruing therefrom may be extended into distant lands, as well as more widely in our own." Opinions differ; consequently, there are doubtless some who will entertain opposite views to Mr. Congreve, both as to the "principles of operation" and the desirability of invoking the Divine benediction upon them.

The preface to Mr. Congreve's book of testimonials is amusingly contradictory. He is at great pains to explain that for many years his attention has been "earnestly directed" to the study of pulmonary disease; first with his father, then as a pupil of the "late J. R. Hancorn" (whom it is to be hoped he treated with a little more respect when speaking of him in his life-time than he does now in writing of him), and afterwards in the medical schools and hospitals of London, where he "attended all the courses of lectures and clinical practice required of the medical student." The medical schools and hospitals of London are numerous, and we cannot help thinking that it would have facilitated Mr. Congreve's studies had he applied himself steadily to work at one institution, instead of imitating the bee, roving from place to place in quest of honey—Balsamic Elixir, we should perhaps have said.

A country squire whose son was, like Mr. Congreve, in a position to boast in the plural number of the seats of learning with which he was acquainted, was descanting upon the subject to one of his tenants, and commented upon the remarkable circumstance that the young Hopeful had enjoyed the exceptional advantage of being educated at two universities. "There isn't much in that,"

replied the old farmer, who had not the high opinion of the young squire's mental abilities that the father had; "why, I once had a calf that sucked two cows, and the more he sucked the bigger calf he grew."

Well, supposing that Mr. Congreve's father was a medical practitioner, although, by the way, Mr. Congreve does not vouchsafe any information on this point; that J. R. Hancorn (it goes against the grain to have to speak thus familiarly of the eminent surgeon who had the inestimable honour of imparting the principles of special knowledge to Mr. Congreve) "had an extensive practice in cases of consumption," as Mr. Congreve asserts; and that Mr. Congreve attended all the hospitals and medical schools of London, and all the courses of lectures required of the medical student, there is a certain something which should be explained, and that is, why Mr. Congreve omitted what is required, or expected, of every student—namely, to pass an examination at one or more of the colleges, thus affording evidence of proficiency, and qualifying for medical practice. Perhaps, despite the all-absorbing character of his medical studies, he stole an occasional half-hour for the perusal of Shakespeare, and the following passage in *King John* struck his fancy as appropriate to his case:

"Therefore, to be possess'd with double pomp,
To guard a title that was rich before,
To gild refined gold, to paint the lily,
To throw a perfume on the violet,
To smooth the ice, or add another hue
Unto the rainbow, or with taper light
To seek the beauteous eye of heaven to garnish,
Is wasteful and ridiculous excess."

Whether such a supposition is correct or not cannot be determined here; but one thing is a fact—viz., that Mr. Congreve does not think it expedient to wholly disregard professional qualifications, for he tells us, in imposing capital letters, "I have much pleasure to announce that I have secured the valuable assistance of my son-in-law, J. Alex. Brown, M.R.C.S., L.S.A., who has now been with me some years. In my absence patients will be carefully attended to by him." Any one with a little imaginative power might think he was reading of a modern Laban and a second Jacob. But Laban restricted Jacob to looking after sheep, while Mr. Congreve intrusts his son-in-law with the charge of patients in his (Mr. Congreve's) absence. What, we wonder, do the patients, if they share Mr. Congreve's lofty contempt for medical qualifications, say to this "wasteful and ridiculous excess?" And what ought the Medical Council to say to such an extraordinary arrangement?

The "reverend specialist" referred to in our previous article employs "a physician in attendance," obviously as "a cover;" but if this be Mr. Congreve's motive for securing the valuable assistance of his son-in-law, it could not avail him much in the event of proceedings being taken for illegal practice; for he naïvely admits that J. Alex. Brown, M.R.C.S., L.S.A., is permitted to see Mr. Congreve's patients only when Mr. Congreve is absent. To use a phrase common amongst boys sliding on the ice, J. Alex. Brown's sole function and privilege appear to be to "keep the pot a-boiling."

As Mr. Congreve reminds his readers in the cheerful (?) Christian style which pervades the entire book, there is "an appointed time for man on earth," and if any one wishes to personally obtain the "*God-provided* remedy for poor suffering humanity" (*alias* the Balsamic Elixir), he must present himself at Mr. Congreve's residence on certain days at stated hours, when he can consult Mr. Congreve, or, in his absence, J. Alex. Brown.

Some anxious inquirer may despondingly suggest such a misfortune as the absence of both of these individuals. We hasten to dispel the gathering gloom which must result from even the bare idea of such a calamity. "In order that the world at large might derive the benefit of their use," Mr. Congreve tells us that these "God-provided remedies," "prepared solely by me, at my residence," &c.—that accounts for the days on which he cannot be seen, we suppose—have been "introduced in the form of *proprietary* medicines," which can be had of any respectable chemist.

Imaginary dialogue in a village shop between a chemist and a lady customer:—"Are you a *respectable* chemist?" "Why, certainly." "Then I want a bottle of Mr. Congreve's '*God-provided*' Balsamic Elixir." "Yes, madam; small or large size? Mr. Congreve, the sole provider, I mean preparer, says, 'The circumstances of the patient permitting, it is much better to have the latter—a saving of trouble and expense.'" "What is the price?" "Family bottles are 11s. and 22s." "Give me a twenty-two shilling bottle; it is so much cheaper than paying a moderate fee to a qualified medical man who, so Mr. Congreve says in his book, would not know anything about my case."

Mr. Congreve professes not to mind what trouble he takes. "I am not actuated solely by ideas of pecuniary gain, but a sincere desire to benefit my fellow-creatures, as much as my own advantage," he tells us in his book. Nay, more, he does not care, apparently, how much trouble he is put to, in addition to solely preparing the remedies, for he specially remarks—using italics to

emphasise the fact of his earnestness—"whenever the two larger sizes are required, it is better to obtain them direct from me." This admonition is needed, for otherwise the thoughtless patient might imagine it would be a saving of trouble and expense to buy of some chemist—respectable chemist, of course, nearer home. Why, there is one not far from our office who actually sells the 11s. size for 8s. 9d. and the 22s. family bottle for 17s. 6d., as we learn from his price list. We have never made such wholesale purchases of any patent medicines. Life is not long enough for such experiments, let alone our purse; but if we ever found ourselves disposed to indulge in such "wasteful and ridiculous excess," as regards the Balsamic Elixir, we should probably take the first omnibus to Peckham, carefully sitting back in a corner as we passed the lunatic asylum (lest our object might be guessed, and ourselves be detained as a fitting candidate for admission), and save trouble and expense (?) by paying the full price into the hands that had solely prepared this *God-provided* nectar. It is so much more satisfactory to get a bottle of wine direct from the original bin than to have it from the public-house round the corner.

Now, what on earth could have put this last idea into our mind? Why, we read some time ago in the *Provincial Medical Journal* an article in which the Balsamic Elixir was irreverently compared to diluted "publican's port," *plus* a little Friar's Balsam, also known as the compound tincture of benzoin. Such a concoction could not, by the greatest stretch of language, be rightly termed *God-provided*, and we have therefore had the stuff recently analysed. The analyst, a gentleman of many years' experience, reports thus: "It seems to be made of infusion of elderberries, a little alcohol and benzoic acid, with a little allspice to flavour it." Country-bred, we admit an inherent weakness on a cold winter's night for mulled elderberry wine, *plus* sugar, *plus* spice, but we should strenuously object to its being chemically "mulled" by the addition of compound tincture of benzoin, *alias* Friar's Balsam.

As for the properties of *this* beverage—we are now speaking of good, honest, unsophisticated elderberry wine—they are too well known to need any description; but as for the remedial properties of *that other* concoction—Congreve's Balsamic Elixir, to wit—we most unhesitatingly and positively assert that it has no power whatever to prevent or modify tubercular deposits, to heal ulcerated lung-tissue, or to cope with the various pathological conditions giving rise to asthma and other chest affections alleged to be cured by the administration

of the Balsamic Elixir; no, not even if such were affirmed in twenty times the number of testimonials put forward by Mr. Congreve. "Tis not the many oaths that make the truth," as Shakespeare observed.

Our article has already run to such a length that we cannot make room for any extended comments on certain much-advertised proprietary medicines which we had intended to write about. One of these is Owbridge's Lung Tonic; a second is "Dr." Lane's Catarrh Cure, sold at "Professor" Brown's depot for herbal medicines, in a street near Covent Garden. Frequent newspaper advertisements exhort people to "save their lives by taking Owbridge's Lung Tonic;" and the proprietors of the Catarrh Cure insist upon the statement that its use as a gargle will prevent consumption. How far the facts will agree with the assertion may be readily realised when we mention that the tell-tale test-tube of our analyst makes us acquainted with the fact that the simple solution of a drachm of carbolic acid in a pint of water (both cheap ingredients) furnishes a compound closely proximate to the contents of a 4s. 6d. bottle of the infallible herbal (!) consumption preventer.

The other life-preserver, Owbridge's Lung Tonic, turns out to be composed chiefly of balsam of tolu, with the oils of aniseed and of cloves. Aromatic, warming, and not unpleasant to the palate, but possessing one negative quality in common with the two preparations already described—the Balsamic Elixir and the Catarrh Cure—namely, utter uselessness in the prevention or cure of the fell disease, consumption, for which the makers falsely assert that the Balsamic Elixir and Catarrh Cure are specifics.

A clergyman in one of the Eastern counties has sent us a copy of a travelling-van quack's certificate, given to a labouring man for the purpose of obtaining sick relief from a benefit club:—

"This is to certefy that — is sufering from yaler janders and not abel to work."
G. LEWES, M.D., U.S.A."

The originality of the spelling is sufficiently striking; but there is another peculiarity about the certificate, and that is, that the U was scrawled, with a long first stroke, so as to resemble the letter L, the obvious purpose being to convey to ignorant or unsuspecting persons that, besides the doubtless assumed degree of M.D., the writer of the certificate possessed the L.S.A. qualification. Our subscriber, happening to see the certificate, made some inquiries, which had the effect of promptly relieving his parish of the impostor. What a pity it is that there are not more clerical gentlemen ready, like this one, to expose quackery, instead of being so easily led into

giving testimonials about matters of which they probably know next to nothing, even if anything at all.

[N.B.—The whole of the articles in this Series will be published next week, crown octavo, 150 pages, with illustrated cover, at the low price of 6d., post free for 8 stamps. Orders will be supplied according to priority of receipt.]

HYGIENIC NOTICES.

Sulphur Fumigating Candles.—Some little time back there appeared in our columns a description of the sulphur fumigating candles patented by Mr. Kingzett, F.C.S., the well-known chemist and managing director of the Sanitas Company. The principle consisted in a cone-shaped fuse fixed on a mass of sulphur moulded in a suitably shaped vessel. The fuse was composed of sulphur, with either chlorate or nitrate of potass or soda. In an improved candle which he has brought out quite recently, Mr. Kingzett dispenses with this fuse, and employs in its place a strip of Brussels net dipped in molten sulphur, and, when coated with sulphur, cut into appropriate lengths. One of these lengths is then bent into a circular form, and so set in the molten sulphur as to constitute the body of the candle. When a light is applied to the prepared strip, which stands up above the surface of the rest of the mass, the strip burns with rapidity, and, as the sulphur liquefies through the heat, it runs down on to the surface of the mass, immediately igniting it. The sulphur candles, as further improved, are of great value in fumigating infected rooms and dwellings, and have already been adopted by numerous sanitary authorities for that purpose. They are also serviceable in ridding rooms, holds of ships, &c., of insect pests; and they are applicable to various trade purposes, such as sulphuring brewers' vats, in order to check secondary fermentation, for purifying slaughter-houses, &c.

DIETETIC NOTICES.

The Universal Digestive Tea is a comparatively new candidate for public support, but its good qualities have soon brought it to the front. General as is the appreciation of tea as a beverage, many persons are absolutely prevented from taking it, or, if they do, they "begin to rue," as the old song says. The reason why tea is thus made "taboo" to thousands upon thousands of people is that it causes indigestion and a whole train of unpleasant concomitant symptoms, owing to the tannin which it

contains. This drawback to the dietetic employment of tea has, as a matter of fact, increased of late years, in consequence of the greatly increased consumption of Ceylon tea, which has a larger percentage of tannin than the Chinese, which it is gradually driving out of the market. The Universal Digestive Tea Company have solved the difficulty of dealing with the tannin, neutralising it by the action of ozone. At the annual meeting of the British Medical Association, held in Glasgow, a series of experiments were made which showed the perfection of this system of detannisation; for while ordinary tea required from 28 to 190 minutes to artificially digest a mixture of starch, the Digestive Tea Company's infusion took only 5 minutes for the same process. We have personally tried it (indeed, we use it in our household), and can highly recommend it for all, but especially for dyspeptic people and invalids with weak powers of digestion.

RECENT HYGIENIC PATENTS.

THE following list of recent Applications for Patents is compiled specially for HYGIENE by W. Mellersh-Jackson, Patent Agent, 75 Chancery Lane, London, W.C., from whom further information concerning them may be obtained.

No. 21,008. "Improvements in the Treatment of Tea, Flour, Cocoa, Coffee, Hops, and other Products." G. J. EPSTEIN.—November 6th, 1893.

No. 21,023. "Improvements in the Treatment of Sewage." T. TWYNAM.—November 6th, 1893.

No. 21,213. "An Improved System of Purifying and Deodorising Sewage by Precipitation." A. GOLDTHORP.—November 8th, 1893.

No. 21,261. "A Disinfecting and Cleansing Fluid." L. ASCOTT.—November 8th, 1893.

No. 21,272. "Improvements in or connected with the Disinfecting and Deodorising of Water Closets, Urinals, and the like, and in the Apparatus to be used therefor." R. M. MEYER.—November 8th, 1893.

No. 21,274. "An Improved Ventilating Device for Sewers." G. LAW.—November 8th, 1893.

No. 21,394. "Improvements in and relating to the Testing and Flushing of Drain Pipes, Soil Pipes, and such like." W. KEITH.—November 10th, 1893.

No. 21,448. "A Method of, and Apparatus for, making Butter and Condensed Milk." W. B. WALTERS.—November 10th, 1893.

No. 21,464. "Improved Apparatus or Splint, for the Treatment of Fractures and Injuries or Diseases of the Leg." J. T. BERGHOFF.—November 11th, 1893.

No. 21,469. "Improvements in Apparatus for supplying Disinfectants or Deodorants to the Water used in Closets, Urinals, and Analogous Apparatus." W. SMITH.—November 11th, 1893.

ANSWERS TO CORRESPONDENTS.

W. B. (Dublin) is anxious about the risk we run of an action for libel, by our exposures of quack medicines. We willingly take the chance, writing, as we do, solely in the public interest. In our reply to the last—or, it would be more correct to say, the latest—threat of such proceedings, we quoted the following extract from Justice Mathew's summing-up in a libel trial where a quack was concerned:—"A sharp, pungent, and unpleasant criticism does not constitute a libel so long as it is honestly written." The threatened writ has not yet reached our office, and does not seem likely to do so.

M. O. H.—Get the Housing of the Working Classes Act, 1890, from Eyre & Spottiswoode, Parliamentary publishers, East Harding Street, E.C.

Humanitas.—See article on "Public Abattoirs *versus* Private Slaughter-houses," in HYGIENE, Vol. VII., No. 5.

L. P. G.—We do not prescribe in these columns. On reference to the *Medical Directory* for this year we see that there are nine qualified medical practitioners in your town, any one of whom would set you right in a reasonable period.

A *Subscriber* (Brighton).—The reprint of all the articles on "Patent *alias* Quack Medicines" will be published next week. Although the book will extend to 150 or more pages, crown octavo, it will be issued at the low price of 6d., in order to insure a large circulation. The book trade has already subscribed for a considerable quantity. Our correspondent and other medical men can greatly assist the sale by purchasing a number to give away to patients and others. Copies will be supplied in order of priority of application. See our advertising columns.

J. G.—Our publishers would print and publish your pamphlet on reasonable terms.

EDITORIAL AND PUBLISHING NOTICES.

EDITORIAL.—The Editor begs to express his thanks to numerous correspondents, and to state that he will be pleased to receive any articles or correspondence coming within the scope of HYGIENE, books or pamphlets for review, reports of medical officers of health, items of general or local sanitary interest, newspapers (marked at the part to which it is desired to draw attention), &c.

ADVERTISERS are requested to bear in mind the greatly increased circulation of HYGIENE, with its weekly issue and reduced price. In addition to the large regular circulation, many thousands of copies are distributed annually to sanitary officials, medical men, private addresses, public libraries, clubs, hotels, &c.

HYGIENE,

A SANITARY WEEKLY PAPER.

VOL. VII.]

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[No. 29.]

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A PLEA FOR THE WORKING MAN'S WIFE.

By MRS. WARNER SNOAD.

A FEW years ago, when visiting among the poor, I could not help noticing how indifferent their cooking accommodation invariably was—a wretched little range, perhaps only a parlour grate, whereon to prepare the savoury, nourishing dishes, which all who study the subject agree are the only counter-attraction to the public-house. Moreover, the wife, whose duty it is to prepare such dishes, is often not so much absolutely ignorant of cooking as absolutely without proper utensils wherewith to cook. I was not surprised, therefore, that when the Sunday joint—cooked at the bakehouse—was gone, the *menu* for the week consisted in almost every case of “a bit of steak popped in the pan” till as hard and indigestible as a brickbat, “a bit of pork” frizzled in a Dutch oven, or “a saveloy, or a plate of something from the cookshop.”

It is very easy to preach and very hard to practise. For my own part, I do not see how a wife, with rooms to clean, the washing to do, half-a-dozen children to tend and to mend for, and a teething baby to nurse, can, with the best intentions in the world, cook also. It is simply a physical impossibility, which no amount of exhortation or mothers' meetings can alter.

It has struck me that if a small cooking-kitchen could be opened in every parish, where wholesome, toothsome dishes could be cooked and sold—not given—to the working-classes, it would be an incalculable benefit. The day's bill of fare could be posted outside, and all dishes sold at a fixed tariff.

A labourer's cottage, fitted with a kitchener and gas

stove—or even a couple of rooms would be sufficient accommodation—a very modest array of kitchen armoury, and a Tegetmeir's cookery book, the stock in trade, and with moderate economy and judicious outlay, the scheme could easily be made self-supporting. Numbers of vegetarian dishes could be worked in as accompaniments to other dishes, many of which, such as haricot and onion pie, pease pudding, lentil soup, date and rice pudding, &c., can be produced at an incredibly small cost, and have proved themselves favourites not only with the poor, but with the well-to-do. Either of the Vegetarian Societies will give every assistance if applied to.

A branch of invalid cookery might be added, and would prove a boon to district visitors and nurses, who know only too well the impossibility of providing suitable food for the sick; and if some of the unemployed girls of the upper classes would give their services as managers (with a woman to do the rough work), it might benefit them, and still further minimise the expenses.

Perhaps some of the richer households or restaurants might send broken meats, dripping, &c., to the kitchen. But this is a detail, as only in exceptional cases should it take the form of a charity. The more the “charity” element is kept out of it, the better will it be appreciated by the class it is intended to help. I believe there is scope here for real practical good—none the less real, perhaps, for taking a humble form; and if I had my former health and strength, I would long ago have reduced theory to practice.

Such is the pith of a letter to which two or three winters ago the Press gave widespread publicity, with the

result that I was simply inundated by letters from everywhere, as it seemed—shoals of letters! piles of letters!!! heaps of letters!!! till the task of opening them became a burden, and I regarded the postman as my natural enemy.

What came of it all? To some extent I am unable to answer, for, although people will give any amount of trouble when they want to start a thing, very few have the grace to tell you how it goes on.

Mrs. Neville (wife of Mr. Ralph Neville, M.P. for Liverpool) and I, however, opened a kitchen at Battersea. This effort was appreciated, and would have been more of a success, but for three great mistakes which we unfortunately made.

Firstly, we took over a kitchen which had been started on similar lines, but which had been a failure. Thus we hampered ourselves with old traditions and old mistakes, from which it was difficult to get free. We ought to have begun clear of such drawbacks.

Secondly, it was too far away from our homes. I have no praise too strong for the energetic way in which Mrs. Neville worked, and for her admirable management; but it is impossible to go several miles for several hours *every* day, at any rate for any length of time—and a kitchen requires constant supervision.

Thirdly, we *paid the cook*, and this is a mistake. Her wages should consist of the profit she can make from the sale of food.

Finally, we handed it over, but we managed it long enough to see that my plan is possible and practicable. However, I do not think it possible to make it pay the first six months. Working classes are shy of a new thing, so that it is necessary to have from £40 to £80 in hand, according to the size of the kitchen.

We bought all the materials wholesale. For bread we paid 2½d. a loaf (cut into eight slices at ½d. a slice); potatoes, 5s. to 6s. 3d. per cwt.; mutton, 6½d. lb.; 3 lb. pieces, 1s. 3d. We had sixpennyworth of bones every week.

For our first month our butcher's bill was too heavy—£5; but this was quite unavoidable, as at first people will only touch joints or dishes to which they are accustomed. The working classes eat far too much meat, and they believe in nothing else; hence it requires the greatest possible tact and management to introduce peas, haricots, lentils, pearl barley, rice, &c., but till this is done, the work of a kitchen is most unsatisfactory.

The following cookery books I can strongly recommend, obtainable from 75 Princes Street, Manchester:—*The Food Reform Cookery Book*, 1d.; *Food for the Million*,

1d.; *Cheap Dinners for School Children*, 2d.; *The Economy of our Food Supply*, 2d.

It is wise to give vegetarian food as an *accompagnement* to a meat dish at first, such as pease pudding and stewed liver, haricots or pearl barley in stews, &c. A good recipe for vegetable soup for 200 people is as follows:—Copper fire lighted at 9 a.m., about 20 gallons of water. It boils by 10, when 6d. worth of onions, 4d. worth of carrots, and 2d. worth of turnips (chopped fine) should be put in the water. At 11, 25 lbs. Egyptian lentils (3s.) should be added. At 12, 7 lbs. coarsest oatmeal (1s.). In addition, 1½ lbs. best dripping, 2 oz. celery seed, pepper and salt (6½d.), should be put into the copper—the celery seed with the oatmeal, and the dripping and seasoning just before it is served. At one o'clock a beautiful creamy soup should be ready, at less than a halfpenny a head! The flavour is excellent, and it should be so soft and mellow that it is impossible to say of what it is composed. When left to stand, it does not settle, nor get thick and coarse.

Here is another economical and tasty dish. Pare several potatoes and onions, slice, and place in a dish with dripping. Add to each layer a little sage and well-steeped tapioca. Cover with pie-crust in the usual way. The potatoes and onions are better if half-boiled before putting in the pie. This dish is most appetising.

You may enjoy *sole au vin blanc*, or *chaud-froid* of woodcock, but these dainty dishes would be horrible to palates which revel in stewed sheep's trotters, and regard fried steak and onions as a triumph of gastronomic art. "Hot, savoury, substantial, and plenty of it," should be your motto, and then success is certain. Each dish, however simple, should be prepared with the greatest care, for good cooking means good health, good digestion, and good temper, and I should like every woman to know how food can be well, economically, and appetisingly prepared and served.

A scheme such as we started in Battersea has existed in Vienna on an elaborate scale for not less than seventeen years, and not long since underwent further extension, having been self-supporting from the beginning; so that it is evident that not half as much is done in this matter in England as might be. It is work which requires much patience and self-sacrifice upon the part of its promoters—far more, in fact, than many loftier undertakings, but the results would be worth striving for.

"Who physics himself poisons a fool."—From Aphorisms in *To-Day*.

INFLUENZA: ITS HISTORY, NATURE,
SYMPTOMS, AND TREATMENT.

(Continued from page 393.)

ACCORDING to Sir Thomas Watson, the influenza epidemic of 1837 followed very closely upon a sudden thaw, which succeeded a remarkable snow-storm at the end of the month of December of the preceding year. Our readers will recollect that we have already remarked on this important fact, viz., the increased activity of the disease when the temperature, previously low, suddenly rises. It is very desirable to keep this circumstance in consideration, if only to prevent being misled and thrown off one's guard by an apparent improvement in the atmospheric condition. Maertens, in his account of the influenza epidemic of 1782, at St. Petersburg, noted a corresponding coincidence between the outburst of the disease and an abrupt elevation of the temperature. His description of the fact is significant:—"On a cold night the temperature rose considerably; the next morning forty thousand people were taken ill with the influenza."

The occurrence of foggy weather has certainly a great influence upon the disease, especially if other conditions are favourable to its development. In 1557 one Short, a kind of a clerk of the weather of his time, who kept a chronological record of the meteorological observations, noticed that thick, ill-smelling fogs ushered in the epidemic catarrh of that year. We ought to have mentioned this epidemic of three hundred and thirty years ago, when commenting upon the decided antiquity of the influenza under other names; we refer to it now, not only as throwing a light upon that point, but also as affording evidence that the indigenous British fog, so bitterly reviled and satirised by our volatile Gallic friends, was *en evidence*, as they would say, many years ago. Not that Monsieur Crapaud can hurl so many sneers at John Bull concerning fogs as formerly, for they are fast acclimatising in his own capital, and now and then Paris closely emulates London in respect of foggy atmosphere.

Jussieu states that, in the epidemic of *la grippe* that occurred in France in the spring of 1733, offensive fogs also happened, "more dense than the Scriptural darkness of Egypt." A mighty fine simile, as Pepys would have remarked, and one that could have been very truthfully applied to the extraordinary canopy of darkness which spread over London like a pall for several days of December, 1889, preceding the 1890 epidemic. Fog, it could not have been correctly styled, for it had little of the pungent, nose-and-eyes irritating characteristics so familiar to the denizens of the Metropolis. It might more

properly be described as a dense, dark cloud, obscuring the sun and, indeed, every object above a certain altitude; beneath which all who had to traverse the streets of London moved about like so many millions of prisoners in the regions of darkness. Yet, only a comparatively short distance out of London, as well as at more remote parts of the country, the sky was bright and clear, while the sun shone with unusual splendour for the time of the year. Whatever might have been the composition of that midnight-looking canopy, and whatever might have been the reason for its overhanging London, there remains one positive fact, viz., that from that period many thousands of influenza sufferers dated their attack, and that even afterwards the epidemic rapidly spread throughout London and over the whole length and breadth of England.

If any evidence were wanting that the disease was conveyed through the medium of the atmosphere as well as by the relatively slower process of contagion, the following instances of sudden outbreaks in 1890 should suffice:—At St. Moritz, a little place in Switzerland, surrounded by mountains, a favourite health resort for invalids, owing to its sanitary advantages, a large proportion of the residents were suddenly seized with the influenza, and one physician there, Dr. Holland, an English medical practitioner, had more than one hundred cases under treatment within a few days. From Tangier it was telegraphed, under the date of January 2nd, in the epidemic of 1890, that the vessels of the United States ironclad squadron, which had been cruising about at sea, arrived at the Moorish port, but were not allowed to communicate with the shore, as they had fifty men down with the influenza. On the 4th of January the United States war-ship *Enterprise*, bound from Villafranca to Antwerp, put in at Plymouth because an outbreak of influenza during the voyage had incapacitated the crew from taking the vessel further. A more significant record still is given in the *Transactions of the College of Physicians*. That time the outbreak of the epidemic happened on board of a British man-of-war; it was in 1782, only six years after the American colony had declared her Independence, and had been lost for ever to the mother country through the blundering, insane policy of George III. and his ministers. On May 2nd of the year in question, Admiral Kempenfeldt sailed from Spithead with a squadron, of which the *Goliath* was one. The crew of that vessel were attacked with influenza on May 29th, and the rest of the squadron were affected at different times; finally, so many of the men were rendered incapable of duty by the prevailing

sickness that the whole squadron was obliged to return into port about the second week in June, not having had communication with any shore during the whole period, but having been solely engaged in cruising between Brest, on the French coast, and the Lizard, on the English. In the beginning of the same month (May) another very large squadron sailed, all hands in perfect health, under Lord Howe's command, for the Dutch coast. Towards the end of the same month, just at the time, therefore, when the *Goliath* became full of the disease, influenza appeared in the *Rippon*, the *Princess Amelia*, and other ships of Lord Howe's fleet, although there had been no communication with the land since they had sailed from home. Sir Thomas Watson mentions, in his *Lectures on the Principles and Practice of Physic*, two curious instances of the sudden sickening of considerable bodies of men in different places simultaneously. On April 3rd, 1833, all London having been smitten with influenza, the "Stag" was coming up the Channel, and arrived at two o'clock off Berry Head, on the Devonshire coast, all on board being perfectly well at that time. In half an hour afterwards, the breeze being easterly and blowing off the land, forty men were down with the influenza, by six o'clock the number was increased to sixty, and by one o'clock on the next day to one hundred and sixty. On the self-same evening a regiment on duty at Portsmouth was in a thoroughly healthy state, but by the next morning so many of the soldiers of the regiment were affected by the influenza that it was found absolutely impossible for the ordinary garrison duty to be performed.

It sometimes happens, about the period of influenza epidemics, such is the unhealthy condition of the air that *epizootics** also rage upon an extensive scale, and that various species of quadruped animals, especially horses and cattle, are affected with pestilential disease in large numbers, and over extensive tracts of country. Outbreaks of this character have been reported during the past three years. Horses have suffered very severely in different parts of England, and pleuro-pneumonia of alarming and spreading extent has been reported from various localities.

One hypothesis as to the causation of such diseases on a large scale, attacking both man and beast, assigns the complaint to some electrical state of the atmosphere, either that it has become negatively electric, or that the meteorological conditions have been such as to cause an

excessive accumulation of electricity in the system. The facts adduced in support of this hypothesis are the following: Fresh meat, sent up by the means of a kite high into the atmosphere during an influenza epidemic, has returned putrid when drawn back to the surface of the earth; large, heavy, distinct thunder clouds, in a negatively electric condition, have been observed just before the commencement of an epidemic; thunderstorms and other atmospheric disturbances have occurred at the same periods. Sir Thomas Watson states that, during the raging of one epidemic, three hundred women who were engaged in coal-dredging at Newcastle, an occupation which involved their wading all day in the sea, escaped the disease; it was thought that this exemption might have been accounted for by assuming that the almost constant immersion of the bare feet and part of the lower limbs in a conducting medium prevented an undue collection of electricity.

Speaking of electricity, it may be remarked that it has been suggested that the usually definite course of the epidemic, in its travels from east to west, might be in some way connected with the magnetic currents passing through the earth.

Before leaving the various hypotheses which have been put forward to demonstrate a connexion between the outbreak of an epidemic and atmospheric agencies, we should mention that in 1851, M. Schonbein, of Basle, Switzerland, published an article in the *Medico-Chirurgical Transactions*, in which he advanced the curious theory that, by the action of electricity on the air, the oxygen contained in it became modified in its nature, and when breathed gave rise to irritation of the mucous membrane of the air passages.

Having regard to its mode of attack, whether by contagion or by infection, the most generally accepted view is that some very minute form of germ, developed under conditions favourable to their growth, multiplication, and rapid transmission, obtains a location in the human organism, and that as the epidemic gains intensity these germs increase proportionately in number and in virulence. The history of every modern epidemic goes strongly to support this view, the earlier cases being frequently mild in their symptoms, while as the outbreak proceeds the later cases are more marked in their intensity. Another and still stronger argument in favour of the germ theory is that one of the most successful methods of treatment is that in which resort is had to the liberal use of antiseptics, which would destroy the vitality of the germs and prevent their growth. Moreover, German bacteriologists have succeeded in discovering

* Epizootic, from the Greek *epi* upon, and *zoon*, an animal, a pestilential disease affecting animals; as distinguished from epidemic, *epi* upon, and *demos* the people, an outbreak of pestilential disease affecting large numbers of human beings.

the influenza bacillus, which, when under the microscope, appears in the form of a very minute rod.

The symptoms of epidemic influenza are, for the most part, uniform in their appearance, the degree of severity being to a great extent regulated by the circumstances to which we have already alluded. The patient feels himself out of sorts, and chilly, even when near to a fire, and repeated shiverings occur; next, the eyes become tender, weak, and watery, and a most persistent headache comes on, chiefly across the temples; sneezing (variable in degrees, sometimes wholly absent), and copious running at the nose occur, quickly followed by dryness and constriction of the throat, hoarseness of the voice, dull, heavy feeling within the chest, difficulty in breathing, and frequent, troublesome cough. This may be said to be the course of the disorder; but the symptoms further include sudden debility, loss of muscular power, and depression of energy and spirits. In persons advanced in life, or of delicate, weak frame, the prostration is intense and alarming, and the majority of fatal cases are due to this condition, the sufferers not having vital strength sufficient to enable them to withstand the fury of the attack at its first onslaught. Dull, aching pains are felt in the muscles and bones, more particularly of the back and the legs. There is a sore, tender, and bruised feeling along the lines of the ribs, and in other parts of the body. Feverishness comes on apace, the surface of the skin feeling hot, dry, and roughened. Sometimes the fever and aching pains are so marked as to lead people to confuse the disease with dengue fever, an affection of which there are periodical epidemics in India and other parts of Asia. We need draw attention to only two distinctive points: in dengue fever there is always an eruption, generally like that of scarlet fever, sometimes resembling erysipelas; there are also frequent hæmorrhages from the nose, lungs, and other parts; neither of these phenomena occur in influenza. The tongue is white, the sense of taste is impaired, and the appetite fails; occasionally there is nausea, or even vomiting. The pulse is usually very frequent. The skin is at first hot and dry. Not unfrequently the affection is ushered in by sudden faintness. When the influenza pursues its ordinary course, and is of the simplest character, the disease abates its violence after a few days, and the patient is usually convalescent within a fortnight, although the cough and weakness continue for some time longer, making the sufferer unfit for his ordinary avocations, and rendering him particularly liable to a relapse—generally more severe than the first attack—of the disease. The digestive functions often

remain impaired for a long time after the symptoms have disappeared. There is a want of relish for food, with almost a loathing for it, although the sufferer stands more in need of it after an attack of influenza than after most illnesses, owing to the great and rapid exhaustion of the system; and there is a characteristic and persistent bitter taste in the mouth, even in cases where no quinine or other bitter tonics have been administered.

(To be continued.)

BRITISH HEALTH RESORTS.*

No. X. (*New Series*).—THE UNDERCLIFF, ISLE OF WIGHT.

By W. H. HALL, M.B.

ALTHOUGH the Undercliff is well known by name, most people who have not visited it seem to have a very vague idea as to what really forms this district. It is that portion of the south coast of the Isle of Wight extending from Luccombe (East) to the little village of Blackgang (South-West), seven miles in length, varying from a quarter to nearly one mile in breadth, and includes Dunnose, Bonchurch, Ventnor, St. Lawrence, Niton, St. Catherine's Point, and Blackgang, with the famous Blackgang Chine.

It consists of an irregular table land, or rather, a succession of terraces, backed up by a chalk wall of unequal height, and raised 50, 60, and even 100 feet above the sea level. Certain internal agencies, land springs and hidden waters, at work since the dawn of life and light upon the world, have resulted in the separation of this strip of land from the hills of which it was formerly a part, and the removal of it bodily to a considerable way below them, between them, in fact, and the sea. To understand the cause of this subsidence, it is necessary to be acquainted with the geological nature of the rocks, and the influences to which they have been subjected. The strata, reckoning from the lower are, first, red ferruginous sand; then blue marl; next, green sandstone;

* The object of this series is to direct attention to the merits of different British Health Resorts, too often overlooked and neglected by persons who are put to much expense, trouble, and loss of time, in visiting Continental Spas, instead of availing themselves of the facilities open to them in their own country. The following places have already been described:—No. 1, Swanage (with illustration), *HYGIENE*, May 13; No. 2, Lowestoft (illustrated), June 16; No. 3, Clacton-on-Sea and Walton-on-the-Naze, July 7; No. 4, Yarmouth (with illustration), August 4; No. 5, Ilfracombe (illustrated), August 18; No. 6, Cromer (illustrated), August 25; No. 7, Malvern, October 13; No. 8, Cornwall, November 3; No. 9, Hastings and St. Leonard's, November 17th.

and at the top chalk and chalk marl. The stratum of blue marl is soft and easily acted upon by land springs, when it becomes mud and oozes out; and the sandstone and chalk being deprived of their support must of necessity sink down. The subsidence, if thus brought about, might be gradual and scarcely perceptible, except in its ultimate results; but the sea was at the same time beating with violence against the lower strata, and washing out the sand and marl, which were already loosened by the springs. This double process would go on till the superincumbent mass became unable to sustain itself by mere adhesion to the parent rock, when it must necessarily break away and fall forward. That this is the way in which the Undercliff was produced is evident from an examination of the phenomena it presents, and what may be observed still going on, though on a lesser scale. The great change in the level must have occurred at a very distant period; churches and houses of ancient date, which stand in different parts of the Undercliff show that no considerable alteration can have taken place for centuries.

The Rev. James White speaks thus of the Undercliff:—"Consisting of a platform varying from half a mile to a quarter in width, bounded on the south by the undulating bays and promontories of the Channel, and on the north by a perpendicular wall of grey rocks, which form the buttress to a range of downs of almost mountainous elevation, it unites two of the principal constituents of a noble landscape. But when, with its guardian hills and ever-varying ocean, we remember the richness of its vegetation, the clearness of the air, and the wild seclusion of its innumerable dells, the glowing expressions of enthusiastic tourists would seem not much, if at all, beyond the truth. In addition to its beauty, the district has acquired within a few years another and better claim to admiration. The peculiarity of its position, guarded from the east and north by a barrier of rock, the mildness of its air, and the extraordinary dryness of its soil, have made a chosen spot for the invalid, and a refuge from the attacks of the English destroyer, or, at least, a soother of the English disease—consumption.

Lord Jeffrey, of the *Edinburgh Review*, writing of the Isle of Wight, says:—"The chief beauty of the island lies on the south, where it opens to the wide ocean, and meets a warmer sun than shines upon any other spot of our kingdom. On this side it is for the most part bounded by lofty chalk cliffs, which rise, in the most dazzling whiteness, out of the blue sea into the blue sky, and make a composition something like Wedgwood's enamel. The cliffs are in some places enormously high

—from 600 to 700 feet. The beautiful places are either where they sink deep into bays and valleys, opening like a theatre to the sun and the sea, or where there has been a terrace or lowland at their feet, which stretches under the shelter of that enormous wall, like a rich garden plot, all roughened over with masses of rock, fallen in distant ages, and over-shadowed with thickets of myrtles, and roses, and geraniums, which all grow wild here in great luxuriance and profusion. These spots are occupied, in various parts, by beautiful ornamented cottages, designed and executed, for the most part, in the most correct taste. Indeed it could not be easy to make anything ugly in a climate so delicious, where all sorts of flowers, and shrubs, and foliage, multiply and maintain themselves with such vigour and rapidity. The myrtles fill all the hedges, and grapes grow in festoons from tree to tree without the assistance of a wall."

The mean annual temperature is $51^{\circ}.72$, and as a result of eight years' calculations, it has been shown that the warmer and more genial winds blow here for the greater portion of the year.

After quoting such high authorities it is needless for me to dwell on the undoubted beauties of the Undercliff, or its climate, especially when I mention that the heliotrope, myrtle, fuchsia, stocks, and roses bloom in the open air throughout the winter, but let me point out to what class of patients it is of value. Although it is an undisputed fact that patients suffering from phthisis, in all stages of the disease, benefit by a visit to the Undercliff, still it must not be supposed that they are the only ones who should go there on account of the extreme dryness, but at the same time stimulating character of the air.

Those suffering from chronic bronchitis, chronic pharyngeal and laryngeal catarrh, convalescence from pneumonia, gout, chronic pleurisy, and the different forms of Bright's disease, will derive benefit, while in some parts, due to the mountainous character of the air, patients suffering from emphysema and asthma will find a welcome change.

In the summer months, too, those suffering from chronic dyspepsia, hepatic, and all forms of uterine, disease, anæmia, debility and failure of nerve power will find the Undercliff well suited to their ailments.



Barbed Wire.—The Wanstead Local Board have decided to serve written notices upon all occupiers of land within their district on which barbed wire has been so placed as to become a nuisance, requiring its removal within five weeks.

PATENT ALIAS QUACK MEDICINES.

By the EDITOR.

No. XXII. (New Series.) -- The Gold Cure for Drunkenness.

"Men often swallow falsities for truths."—SIR THOMAS BROWNE.

IF the learned writer from whom we have taken this quotation (worthy to rank with John Locke as foremost of philosophical physicians) could get an insight into the quackery of the present day, he would find abundant opportunity of verifying his axiom. Indeed, the field is so rich in illustrative facts that one feels an *embarras de richesses* in selecting one for the purpose.

As we wrote those lines, and glanced at the papers lying upon our library table, we caught sight of a boldly displayed advertisement, printed throughout in capital letters, on the leader page of one of the principal London daily newspapers. "Drunkenness permanently cured in three weeks," says this announcement, "by the double chloride of gold treatment as prepared and given with such marvellous results by G. H. McMichael, M.D., of Niagara Falls, U.S.A., in his various institutes in America." Further on, we are told that at the British Gold Cure Institute, located for the time being in a street at the West End, dipsomania, or hereditary drunkenness, is permanently and easily cured. Hereditary drunkenness! This is an ingenious way of helping the drunkard out of his difficulty and disgrace; just as, in the case of gout, no one was ever known to admit that his disease was of his own making—the blame is invariably fixed on a grandfather or some equally convenient ancestor—so we shall have every sot excusing his delinquencies with the remark, "Can't help it, it's (hic!) hereditary, don't you know."

Now this alleged British Gold Cure turns out to be what might with greater truth be designated the American Brass humbug. Its home is at Dwight, in Illinois, and one strong reason for its finding its way into this country, apart from John Bull's proverbial gullibility, is that it has been, to use an Americanism, pretty nearly "bust up" in the United States.

An eminent analyst, who has examined this preparation, reports that it contains neither gold nor chlorides, but that its composition is as follows:—Water 61.31 per cent.; sugar, 6 per cent.; a small quantity of lime-salts; and 25.55 per cent. of alcohol. *Neither gold, nor chlorides* of any metal! Who, after this startling revelation, would dare to attempt a contradiction of Sir Thomas Browne's *dictum*, practically applicable in this instance, "Men often swallow falsities for truths"?

But, though the poor dupes of the American Brass curers of drunkenness (always hereditary, be it remembered, according to their veracious statements) get no gold in their physic bottles—the price charged for those which were analysed was nine dollars (36s.) for two bottles, the lowest number which a purchaser could be supplied with—they get, instead of the expected gold, a wholly unexpected ingredient, in the form of alcohol, to the extraordinary extent, considering what the medicine is given for, of considerably more than one-fourth of the entire quantity of fluid; thus making it double the strength of champagne, and equal to that of port or sherry.

If, however, the patient gets no gold, the same cannot be said of the conductors of the Institute. In reply to a gentleman who wrote, asking for the terms upon which the cure would be supplied, the secretary informed him that the charge was fifteen guineas for three weeks, with five guineas for each additional week. Fifteen guineas were, really, the lowest price that could be accepted for such a priceless boon; and the continuance of the treatment after three weeks, at the modest figure of five guineas for every seven days, would be dependent on the judgment of the doctor—subject, doubtless, also to some extent to the question whether the patient, having swallowed so little gold and so much alcohol in the three weeks' course, had any more of the former indispensable in his pocket. "We do not send out medicines, as we find that to be successful," the secretary somewhat vaguely wrote, "patients must come to the Institute"—where they have to submit to periodical hypodermic injections of narcotic poisons, in addition to quaffing their *golden* grog.

Some of the rules of the Institute are too interesting to pass unnoticed, too, especially if we read between the lines. The first two rules refer, as we need scarcely observe, to fees and prompt payment, patients being delicately requested "to arrange all financial matters with the Secretary-Treasurer on their arrival."

Rule 4 lays down that "the remedy for internal use is compounded to meet individual needs"—can this have reference to the relative proportion of alcohol?—"and loaning or exchanging is not permitted." We could understand that "loaning" would be in brisk requisition if the bottle actually contained—what they are presumed to contain—gold; but what gentleman or lady, except a drunkard, hereditary or otherwise, would dream of "loaning or exchanging" a bottle of liquor?

Rule 5 there is little to find fault with, save that it does not go far enough. "Bathing is essential, and

patients are required to bathe at least twice each week." Drunkards are commonly more chary of using water and soap externally than they are of using water with brandy or whiskey internally; so that there is as much need of advice of this kind as there was in the subject of the following anecdote:—A particularly dirty-looking individual, dirty enough to have been a hermit had he lived centuries ago, presented himself at the consulting rooms of a West End physician, to seek advice concerning a troublesome cutaneous eruption, entirely due to his uncleanly habits. The physician, after a little preliminary conversation, commenced to advise the patient, who, of course, was all attention. "I should recommend you to get forty gallons of boiling hot water into your bed-room when you go home, and to place it in a large tub; next, having divested yourself of your clothes to immerse your body in the hot water; then, taking a piece of soap in your hands, to rub it well until you have formed a good lather, which you should carefully proceed to apply all over your body, removing it by the aid of hot water. Afterwards, you should rub the surface of your body with a dry rough towel." "It seems to me," grunted the indignant patient, scarcely able to restrain his rising passion, "that you are telling me to have a bath." "It does appear like it," blandly observed the physician, as he swept the fee with a clinking sound from the table into a small drawer, "and, by-the-bye, I would recommend you to persevere with the prescription."

Rule 7 reads as if it had reference to the alcohol contained in the golden solution: "The physicians earnestly entreat patients to avoid saloons and bar-rooms, and to use only what is prescribed at the office." Why, certainly! If a man could not content himself with a potion as strong as port or sherry, and twice as powerful as champagne, he would be a most unreasonable individual.

Dr. Usher, of Melbourne, Australia, has described a visit he had made to the Gold Cure Institute at Dwight. The proprietor, "Dr." Keeley, who seemed very uneasy while conversing with him, told him he had employed "the remedy" twelve years with great success. To Dr. Usher's very natural questions as to the treatment and what prescriptions he used, Keeley replied, "We will not go into that; I know it is all right. If you want to learn anything about it, the secretary, or chemist, will tell you." This secretary-chemist turned out to be a sort of page-boy. Dr. Usher was introduced to "the chief of the staff"; he does not tell us what "the chief of the staff" was like, but our readers can perhaps arrive at a fairly accurate

conclusion when we mention that, according to Dr. Usher, "the staff consisted of unsuccessful practitioners." Dr. Usher was taken where three rows of men were being injected in the left arm with five drops each, out of a little porcelain bowl containing a pinkish material—atropine. Many of the patients wore glasses, and they told him that they could not see three or four days after the commencement of the course of treatment, and had become almost blind. They suffered, too, from giddiness. One patient had been at the institution nine weeks, and was afraid to leave because three of his "pals," who had left ten days before, had got drunk and had to come back. So much for the permanence of the Gold Cure! Another patient, who really seemed in some respects more intelligent than the rest, candidly imparted the information that an aunt had promised him an annuity if he stayed there two or three months, so that he "wanted to see the time out."

Incidentally, Dr. Usher throws an amusing light on the manufacture of testimonials. Three leading physicians from New York, Boston, and Philadelphia, representing three different societies in those cities, had visited the Institute, at various times, remaining half a day or so. Some six weeks afterwards, Keeley (the sly rascal!) issued a number of circulars which set forth these three gentlemen as remarkable instances of successful cure. One of the special features of the American Gold Cure Institute is that there is amongst the members a "Bichloride of Gold Club," including two classes termed, respectively, "graduates" and "undergraduates." Could anything beat this as a specimen of exquisite humbug?

It is too often the practice in England to severely punish small offenders, while great ones go scot-free.

In the daily paper from which the advertisement of the Gold Cure Institute was taken, we noticed a police-court report of a miserable old man who was sent to prison for trying to pass a counterfeit shilling in payment for a scrap of bacon. Decrepit dolt! If, instead of resorting to what may be termed the silver cure for starvation, and tendering a coin deficient in value by a few pence only, he had hired a house in a fashionable quarter and passed off a compound of alcohol, water, and sugar as containing gold, he might have "gone the whole hog" in place of a beggarly bit of bacon, and have made thousands upon thousands of pounds in a few months.

Who is responsible for the inaction of the police, who is to blame for the inertness of the medical corporate bodies, in such gross instances of quackery

and imposture as we have exposed, and shall continue to expose, in the columns of *HYGIENE*?

[N.B.—The whole of the articles in this Series will be published next week, crown octavo, 150 pages, with illustrated cover, at the low price of 6*d.*, post free for 8 stamps. Orders will be supplied according to priority of receipt.]

SIGNIFICANT SMALL-POX STATISTICS.

(Compiled by Dr. Thresh, M.O.H., Chelmsford, &c., and based on Dr. Barry's Report of the Sheffield Epidemic.)

NUMBER OF PERSONS ATTACKED.

Out of every 1000 unvaccinated children under 10 years, 101 were attacked; out of every 1000 vaccinated children, 5 only were attacked. Unvaccinated children are therefore 20 times more liable to attack than vaccinated.

Out of every 1000 unvaccinated persons over 10 years of age, 94 were attacked; out of every 1000 vaccinated, only 19 were attacked. Over 10 years of age, therefore, unvaccinated persons are 5 times more liable to attack.

DEATH-RATE AMONGST THOSE ATTACKED.

Out of every 100 unvaccinated children attacked, 44 died; out of every 100 vaccinated children attacked, only 2 died. A child under 10 who has not been vaccinated, therefore, is not only 20 times more liable to be attacked, but the attack is 22 times more likely to end fatally. The danger of an unvaccinated child dying from small-pox during an epidemic is more than 440 times as great as that of a vaccinated child.

Out of every 100 unvaccinated persons over 10 years of age attacked, 54 died; out of every 100 vaccinated over 10 years of age attacked, only 5 died. Therefore unvaccinated persons over 10 years of age are not only 5 times more liable to attack by small-pox, but 11 times more likely to die if attacked. The danger of such a person, if unvaccinated, dying from small-pox during an epidemic is 55 times greater than that of a vaccinated person.

To sum up: during the prevalence of small-pox an unvaccinated child under 10 years of age is 440 times more likely to die of the disease than a vaccinated child. An unvaccinated person over 10 years of age is 55 times more likely to die than a vaccinated person.

NOTABLE INDUSTRIES.*

NO. 2 (NEW SERIES).—BOVRIL.

WE have sometimes heard people discussing the accentuation of this word. Should the 'o' in Bovril be long or short? "That is the question," as Hamlet says in his famous soliloquy. Quoting Shakespeare, we are reminded how much may occasionally hang upon the pronunciation of a word. If the future Bard of Avon had not, in a moment of irritation, written the well-known satirical verse on the Lucy family—influential landowners in the neighbourhood of Stratford—bringing in the coarse provincial pronunciation of their name, he might never have left his native place, as he is said to have done, bearing the consequences of their displeasure, but have lived an uneventful life in the quiet South Warwickshire town; in which case England might never have had the works of the immortal bard. We need not reproduce the verse referred to; but that our readers may not go without doggerel altogether, we will venture on a little rhyming of our own, adopting in the second and fourth lines that of Shakespeare:—

Be it Bōvril, or Bōvril,
As some folk miscall it,
Yet Bovril is true V-ril,
Whate'er may befall it.

The first syllable, then, is derived from "*Bos*, *Bovis*—an ox;" and the second is from the Latin also, *Virilia*, meaning man's strength and power.

But our readers will naturally ask next, What is Bovril, as regards its composition? It is extract of beef meat, *with the addition* of the nutritious portions, viz.: the albuminous and fibrinous constituents. In the ordinary extract or beef tea, only the stimulating properties of the beef are preserved; but the Bovril process of preparation, patented by Mr. J. Lawson Johnston, secures the presence of those constituents of the meat which go to form muscle, brain, blood, and bone tissue in the human system. Professor Liebig discovered the mode of obtaining meat extract, which, however, is nothing more nor less than beef tea under a more scientific designation; but Mr. J. L. Johnston, in inventing Bovril, went considerably further; for he has succeeded in doing what Professor Liebig foreshadowed in the following remarks (see the *Lancet* of November 11th, 1865): "Were it possible to furnish the market at a reasonable price with a preparation of meat combining in itself the albuminous with the extractive principles, such a pre-

* Under this heading, it is intended to give from time to time descriptions of hygienic or dietetic manufactures of special interest. No. 1, Bread and Bread Making, appeared in *HYGIENE* for July 7th. (Vol. VII., No. 8.)

paration would have to be preferred to the *Extractum Carnis*, for it would contain *all* the nutritive constituents of meat." Elsewhere Liebig observes: "I have before stated that in preparing the Extract of Meat, the albuminous principles remain in the residue; they are lost to nutrition, and this is certainly a great disadvantage."

Here we have at once a concise and comprehensive explanation of the reason why the Bovril Company claim that their preparation is fifty times more nutritious than any extract of meat, or beef tea made in the usual way, could possibly be; a claim which is so strictly true that they are in the position to offer—without the least probability of being called upon to pay—to hand one thousand guineas to any charitable institution, if this assertion can be refuted.

In order to make ourselves thoroughly acquainted with the Bovril process, and the numerous dietetic articles prepared by the Company bearing the name, we availed ourselves of the opportunity afforded to us, with some other journalists, by an invitation courteously given by the directors, to visit the Bovril Factory, whither we wended our way on the 25th of November.

The works are situated in Bath Street, City Road, and consist of a large and substantial modern building, comprising five floors. The rooms, which run the entire depth of the factory, are lofty, well ventilated, well lighted, and scrupulously clean and neat—a commendation which will also apply, with equal force, to the work-people, of whom we shall have occasion to speak again.

Commencing our round of inspection at the top floor, we were first shown a curious series of specimens, illustrative of the proportion of water and other constituents of different food materials. When people talk of a solid beefsteak, they can scarcely realise the fact that it contains about 70 per cent. of water, the other thirty parts being made up of nitrogenous matter (fibrin and albumen), 19.5 parts; fat, 9.7 parts; and mineral bone-forming matter (phosphates, &c.), 1.4 parts per 100. It may be laid down as a rule, that "the more lean, the more water" in proportion. At the same table we examined an interesting group of Bovril products, identical in character with those supplied by the Company to the officers and men of the Nansen expedition. These included Bovril in various forms, the Company's cocoas, and a specially prepared "Emergency Food," intended for eating purposes when any difficulty occurred in getting boiling water for making Bovril as a drink.

Its unique character consists in its containing a large proportion of vegetable fat (cocoa butter), which must

render this article particularly valuable for dietetic purposes in cases of extreme low temperature, such as the intrepid Arctic voyagers are now experiencing.

In the same room we saw the extract of beef, which had been prepared by the cold process, eliminating the gelatine, for the Company by the manufacturing houses engaged in this industry in New Zealand, Australia, Queensland, and South America. It may be mentioned here that forty pounds of lean meat are requisite to make one pound of the extract. Close by stood cases containing the albumen and fibrin of ox beef ground to a very fine powder. These powdered, nitrogenous, flesh-forming principles are added to a blend of these extracts of meat, in definite proportions, in a porcelain lined copper vessel, where they are thoroughly amalgamated by a set of revolving blades, the compound (Bovril) being subsequently passed down a pipe to the lower floors of the building for the purpose of filling into the bottles. It will be seen that the process of blending, &c., is conducted mechanically, so that there is no necessity whatever for materials being touched by hand. In making the powdered fibrin and albumen, ten pounds of ox beef are required for each pound of the powder. The essence of beef, or beef jelly, is made in another department, by clarifying the extract and straining it through fine linen bags.

Bovril has been analysed on numerous occasions by the most skilled analysts of the day. Seeing that they are unanimous in their conclusions, and that they all dwelt on the point which we have already laid great stress upon, viz., the fact that the admixture of the fibrin and albumen constitutes a special source of strength, and distinguishes Bovril from all extracts of beef, we need give only one of these analyses. Under the date of April 21st, 1891, Mr. William Harkness, F.I.C., F.C.S., states that Bovril contains in one hundred parts, 36.21 parts of fibrin and meat extract, and 6.33 of albumen (nitrogenous or flesh-forming foods), 15.41 of mineral or bone-food (phosphates, &c.), and 8.57 of carbonaceous or heat-giving food. The quantity of moisture is 33.48 per cent., as compared with 69.4 (more than double) contained in well-fed beef. With regard to the other constituents in beef, Professor Church, in his standard work on Food, gives the nitrogenous matter (fibrin, albumen, &c.), as 19.5 per cent.; mineral matter, 1.4 (contrasted with 15.41 in Bovril); and fatty, or carbonaceous matter, 9.7 per cent.

These figures are so important in their bearing that, to show their significance more fully, we append them in a tabular form:—

CONSTITUENTS IN 100 PARTS.

	Well-fed beef (Prof. Church).	Bovril (Mr. Harkness).
Water	69.4	33.48
Nitrogenous matter ...	19.5	42.54*
Carbonaceous „ ...	9.7	8.57
Mineral „ ...	1.4	15.41

The mineral matter, as will be seen on reference to this tabular statement, is eleven times more in Bovril than in good beef, and its richness in phosphates (nerve food) will explain why Bovril has such remarkably valuable effects when given to persons suffering from any form of exhaustion, be it mental or physical. "The organic matters," Mr. Harkness reports, "which on drying the Bovril amount to 76 per cent., consist of albumen, fibrin, creatin, creatinin, peptones, &c." The marked presence of the peptones is of great importance, because the Bovril being thus partially peptonised, is more readily digested, rendering it easily assimilated and consequently a model food for invalids and all persons in delicate health. In this connexion we should state that the Company prepare, for medicinal purposes, a concentrated Bovril, even stronger than that of which we have given the analysis.

The other floors are occupied by departments for making various specialties, for filling bottles, hermetically sealing, capsuling, labelling, packing, and other operations entailed by such an extensive business. The lowest floor of all is that in which Bovril wine is put up. As a matter of fact, Bovril is of itself stimulating as well as nourishing, by reason of the salts of flesh (phosphates, &c.) expressed from the beef; but to suit the palate of those who prefer it in the form of an alcoholic compound, it is put up with port and a certain proportion of malt extract, which assists the digestive organs in assimilating starchy foods.

It would be difficult for us to enumerate all the products of the Bovril Company. The principal are:—Bovril, Bovril wine, Bovril lozenges, Bovril biscuits, beef essence or meat jelly,† cocoa with Bovril (containing 33 per cent. of beef) and without (the latter bearing the distinctive name of Kudos cocoa), and chocolate, with and without Bovril. The Company have just perfected a preparation, to which the title of Bospur Soup Powder is given, in which both animal and vegetable nourishment are judiciously blended in a concentrated condition.

* Fibrin and meat extract, 36.21, and albumen, 6.33.

† The Essence is enclosed in a patent pocelain-lined tin, having the obvious advantage of preventing the contents from becoming contaminated by metallic contact.

It is made with prime South American ox beef, sterilised bacon, Canadian peas, potatoes, and various herbs. The low price at which it will be sold—1*d.* per packet—from which two plates of good, nutritive soup can be quickly got ready, will soon make it a favourite article of food for the million.

Another of the Company's new preparations is Vril Food for infants and invalids. Analysis shows that it contains in 100 parts, 16.94 of albumen and casein, 56.47 of starch and dextrin, 12.50 of sugar, and 5.08 parts of fat. It requires no cooking or addition of milk, is easily got ready for use, and, since it contains all the essential elements of mother's milk, is an admirable food for infants. In the case of adults, more of the Vril powder is to be employed.

Passing out of the main building into an adjunct one, where carpentering and similar operations are separately carried on, we were much interested by the different labour-saving appliances and the rapidity with which boxes and packing-cases were branded with the Company's name and trade marks, put together, nailed, and finished off almost as quickly as we could fold up the sheet of paper on which we are writing. As we returned through the yard, the Vice-Chairman, Mr. J. L. Johnston, drew our attention to some massive improved machinery waiting for shipment to the Company's agents at Buenos Ayres.

Before taking our leave of the subject, we must say a few words concerning the operatives employed by the Bovril Company, some 250 in number, about two-thirds being girls and young women. They all looked cheerful, happy, and healthy, as they might well be, having regard to the excellent general arrangements and the light nature of the duties to be performed. The hours are from 8 a.m. to 6 p.m., an interval of one hour in the middle of the day being allowed for dinner and rest or recreation. On Saturdays the hands are employed for five hours only. It may, therefore, be considered that the eight hours system has been practically adopted by the Directors, amongst whom are the Right Hon. Lord Playfair, K.C.B., F.R.S., and Dr. Robert Farquharson, M.P. The whole of the work is piece-work, thus encouraging industry and dexterity. Beginners, usually girls of about fifteen years of age, earn an average of 8*s.* 6*d.* per week, and as they advance they can make 16*s.* to 20*s.* There are separate dining-rooms for men and women; attendants are kept to look after cooking, &c., and facilities are given to the girls and women for preparing and warming any food they may bring with them.

REVIEWS AND NOTICES OF BOOKS.

Impediments of Speech: Stammering, Stuttering, Lispings, &c.—Beaumont & Co., Ltd., Savoy House, 115 Strand, London, W.C. Price 2s. As this well-known work has previously received notice in *HYGIENE*, we need only mention that it has passed into another (the twelfth) edition.

Patent alias Quack Medicines.—The cheap reprint of the whole of the articles on this subject which have appeared in *HYGIENE*, will be published next week. For further particulars see our advertising columns. The



accompanying illustration, taken from the title page, was copied from a photograph of a Sequah Lecturer, drawing teeth and a crowd at Hastings.

DIETETIC NOTICES.

CEBRO: A New Mineral Water and Aërated Beverage.—A short time since we noticed this novelty in the following terms:—"Cebro is a new beverage, possessing excellent qualities. It is agreeable to the palate, refreshing, and reviving, as well as an aid to digestion, and can be taken at any time, either alone or with any kind of spirits or wine. As Cebro is aërated with phospho-carbonic gas, and not with carbonic acid gas, made in the ordinary way, it is not open to the objections frequently made against seltzer, soda, and potass waters, that their free use produces dyspepsia, flatulence, and nervous depression. It will be welcomed as a valuable addition to the list of wholesome dietetic beverages, and must become a universal favourite, especially as it is sold at a very reasonable price."

What we then said, we can now thoroughly endorse. The process of manufacture, which has been patented, has been

brought to the height of perfection; while the improved and elaborate machinery fitted up at the new factory in the Vauxhall Bridge Road, near to Victoria Station, is capable of turning out the enormous quantities which will doubtless be required as soon as Cebro becomes well known, and as duly appreciated.

We do not profess to enter into unnecessarily minute details, but at the same time we may mention that the Cebro Company is in a position to supply upwards of twenty thousand bottles daily, and that the machinery now in course of erection will enable the Company to keep well up with any additional demands on them. The acknowledged axiom that "the supply equals the demand" will doubtless be thoroughly exemplified in this instance; for, with a wise forethought as to public requirements in the near future, the manufacturers of the beverage under notice have erected machinery capable of turning out a larger quantity even than we have stated.

The process of manufacture is patented by Messrs. Andrews and Beneke, No. 16,932; and, although they will most probably have many imitators, the careful and methodical style in which Cebro is made will leave all such people at a distance. "Imitation is the sincerest form of flattery;" but we imagine that the proprietors of Cebro will neither appreciate competition of this kind, nor permit it in the interests of the public.

Without going into technicalities, we may briefly describe the manufacture. By the action of glacial sulphuric acid on certain mineral salts, including phosphate of soda, phospho-carbonic acid gas is produced, and this is forced, under heavy pressure, into filtered water; the result is a phospho-carbonised effervescent fluid, reminding one much more of a natural spring than of any manufacture.

To show the carefulness of the manufacturers to ensure the utmost perfection and purity, we may state that the fluid, as aërated, is passed through silver-lined tin piping, and that the cylinders employed in the process are also covered on the inside with the same metal; the result being, of course, that metallic contamination—so frequent an occurrence in the common manufacture of aërated waters—is rendered an absolute impossibility.

The same regard for cleanliness is obvious to the visitor at even a mere glance through the building; a point which must commend itself to every one who has ever seen the interior of one of the many so-called mineral-water factories in the suburbs of London; places which spring up with the advent of summer, and disappear at the approach of the following winter. It would be beyond calculation to arrive at any proximate idea of the amount of illness and waste of public money for which these ephemeral establishments are responsible. It is certainly bad enough for thousands upon thousands of pounds to be thrown away annually upon water, *plus* an undefined quantity of carbonate of soda; and worse still that such a reckless distribution of alkali should damage the digestion of many hundreds of thousands of people who

pay for, and naturally expect, something different. As for the pocket, that is not of such great importance as individual health; though it must be very galling to learn, as we have done of late, from the police-court reports, that there are makers of mineral waters who consider it a great stretch of generosity towards their customers to put even a few grains of common carbonate of soda into the unfiltered, and often impure, water which they sell to the public at an inverse ratio to its value.

All the water used by the Cebro manufacturers is filtered, the works being provided with filters adaptable to both high and low pressure, by the London and General Water Purifying Company. In this respect, as indeed in all matters of large importance or of minor detail, the manufacturers have wisely gone on the principle that "the best is the cheapest." Further, they have rightly given due regard to sanitary arrangements at their factory. Cleanliness is a strong feature, and the same regard for hygienic precautions is evident in every department.

An examination of samples of Cebro shows that in every pint there are contained six grains of phosphate of soda, with other saline ingredients. To the phosphate, as well as to the free phospho-carbonic gas, are due the tonic properties of Cebro, and a characteristic soft, delicate flavour, not to be found in other aerated waters.

NEWS AND NOTES.

The Horrors of Foreign Travel for Invalids.—Much complaint has lately been made of the suffocating state of the air in the Mont Cenis Tunnel, and some few days back a train arrived at Bardonecchia from Modane with several of the persons carried by it insensible through semi-asphyxiation by the sulphurous vapour emitted from the engine. The fuel used is of a vile malodorous character, and the whole service and material of Italian railways are below the proper standard; so that invalids whose means and inclination take them to Italy for the winter incur much discomfort, besides running some risks, on the journey.

Small-pox in London has again resumed threatening proportions, especially at the West End. We are informed that sixteen small-pox patients were removed to the Asylums Board's hospitals in forty-eight hours from Kensington alone.

The Metropolitan Asylums Board.—At a recent meeting, Sir Edwin Galsworthy presiding, a communication was read from the Local Government Board, assenting to the proposed sale of land by the Bethnal Green Guardians, for the purpose of enlarging the North-Eastern Fever Hospital. The Local Government also wrote to the effect that two of their inspectors were about to hold an inquiry into the proposals to purchase the Grange Wood estate, at Upper

Norwood, for the establishment of a convalescent fever hospital. The returns from the fever hospitals under the Asylums Board showed that there were 3451 infectious cases under treatment in them, being a slight increase over the previous fortnightly returns.

Leicester is in eminent danger of a water famine, and the Council have issued a notice, stating that only a few days' supply remains in the reservoirs, so that unless the outlook quickly improves, the supply for manufacturing purposes will have to be temporarily discontinued. This would throw thousands of persons out of work.

Scarlet Fever and Milk Supply.—Dr. Clothier, M.O.H. for Hornsey, has lately stopped a serious epidemic of scarlet fever in this populous suburb. Out of eighteen cases reported in less than a fortnight, all but one were traced to milk supplied from a dairy in St. Pancras, which in its turn had obtained the milk from a farm at Hendon. The further sale was promptly stopped, both at Hornsey and in St. Pancras.

Registrar-General's Office.—The vacancy in the post of Superintendent of the Statistical Department has been filled up by the appointment of Dr. Tatham, M.O.H. for Manchester.

Pontypridd.—The Local Board have decided to erect a public slaughter-house.

Costly Pollution of Well Water.—The Corporation of Burton-on-Trent have had to pay Messrs. Allsopp & Sons, Limited, brewers, 2000*l.* in settlement of that company's claim for damages arising out of the pollution of one of their wells.

The Greenwich Workhouse Epidemic may now be regarded as fairly at an end, after causing considerable mortality. Examination of the water taken from the wells supplying the workhouse and infirmary has led to the discovery in it of the existence of comma, or cholera, bacilli.

The Uttoxeter Waterworks are nearly completed, and a covered service reservoir holding 150,000 gallons has been built in connexion with them. The applications for the new supply are so numerous that the local authority will soon find the moderate outlay of some 5000*l.* very remunerative; and as the Bramshall springs must soon prove insufficient to meet the public requirements, it has been decided to take steps to obtain an additional supply from the Somershall springs, about three and a half miles off.

One way of Promoting Temperate Habits.—Dr. Lettsom records the case of a man who took twelve drams of spirits

daily, but, having determined to wean himself from this practice, he adopted the following expedient. He always drank from one glass, into which he let fall a large drop of sealing-wax after taking each dram. In this way he gradually reduced the quantity of spirit consumed, until at last his glass became filled with wax, and the habit was eradicated.

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Never saw a Cow.—The following story is told of a milkman in Boston, U.S.A. It appears that a report had become current among this milkman's customers that his cows were suffering from some cattle disease, and on his presenting himself one morning at a customer's door he was informed of this rumour by the lady of the house, who also told him that, under the circumstances, she did not wish him to leave any more milk for the present. "Lord bless you, ma'am," was his reply, "why, my milk never saw a cow." The effect of this reassuring (?) statement upon the lady is not stated, but it may be readily imagined.

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Hospital Patients in Vienna.—The arrangements for the admission into the hospitals in Vienna differ very widely from those in force in English institutions of the same kind. There all the public hospitals are under the direct supervision of the State. No letters of recommendation are ever required. All sick persons, without distinction, are received in the general public hospitals who can show a medical certificate for admission, or who may on presenting themselves be pronounced fit subjects for treatment by the hospital physician. For every patient under treatment the treasurer receives a certain daily sum, paid by the relatives of the patient, if they are in a position to do so; if not, by the Poor-Law Guardians of the district to which he belongs.

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Happiness depends on the Individual.—

"How small, of all that human hearts endure,
That part which lords or kings can cause or cure.
Still to ourselves, in every place consign'd,
Our own felicity we make or find."

These lines, added by Dr. Johnson to Goldsmith's poem of the "Traveller," with Goldsmith's consent, are worthy of consideration, especially when one feels disposed to repine at his ill-fortune, or to submit without an effort to every disaster that may threaten him.

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What is a Pineapple?—At an old-fashioned hotel in London two gentlemen were dining, when a dispute arose as to what a pineapple was; one gentleman insisting that it was a fruit, the other, with equal confidence, asserting that it was a vegetable. A bet was made, and the diners agreed to accept the decision of the head-waiter. Now, he was as old-fashioned as the hotel itself, in which he had spent most of his lifetime. He was called to the table. "John," asked one of them, explaining the matter, "how would you describe

a pineapple? Is it a fruit, or is it a vegetable?" John rubbed his hands, placed his head on one side, and with a pitying smile, replied:—"It's neither, gentlemen. A pineapple is an *extra*."

ANSWERS TO CORRESPONDENTS.

Alpha.—The reason why persons can be subjected to such low temperatures as prevail in winter in the two countries you name—Norway and Canada—is that the air is drier and the weather less changeable. We have been in each during the winter, and should certainly give the preference in this respect to both Norwegian and Canadian winters over our variable climate, with its fog and moisture-laden atmosphere.

Viator.—The two principal cities in Egypt are notoriously unhealthy. Last year the death-rate in Cairo was 47 per 1000 inhabitants; in Alexandria, 41·3. In "Greater" London, with a population of nearly six millions, the mortality rate was only 19·3 per 1000.

Housewife.—The frozen meat brought from Australia, New Zealand, was at first literally frozen, being packed in ice; but it was found that the meat was sometimes spoiled on the passage through the melting of the ice, and that the meat often became sodden and flavourless. It is now preserved on board ship and at the depots at a temperature of 40° Fahr., by passing over it currents of compressed cold air.

N. B. (Southampton).—The subject will receive early attention in HYGIENE.

A Sanitary Inspector (Norfolk).—Yes; it is included in your official duties.

C. L.—The oldest hospital in London is St. Bartholomew's, founded in 1123.

Hygeia.—The next article of the series on "The Employment of Women" will appear in HYGIENE, for Dec. 8th.

EDITORIAL AND PUBLISHING NOTICES.

EDITORIAL.—The Editor begs to express his thanks to numerous correspondents, and to state that he will be pleased to receive any articles or correspondence coming within the scope of HYGIENE, books or pamphlets for review, reports of medical officers of health, items of general or local sanitary interest, newspapers (marked at the part to which it is desired to draw attention), &c.

ADVERTISERS are requested to bear in mind the greatly increased circulation of HYGIENE, with its weekly issue and reduced price. In addition to the large regular circulation, many thousands of copies are distributed annually to sanitary officials, medical men, private addresses, public libraries, clubs, hotels, &c.

HYGIENE,

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THE SMOKE AND FOG OF LARGE TOWNS, AND THEIR PREVENTION.

*By A. E. FLETCHER, F.I.C., F.C.S., H.M. Chief
Inspector under the Alkali Act.*

THE air we breathe is a mixture of oxygen and nitrogen, with a little carbonic acid and a variable quantity of water vapour. Although these are not chemically combined so as to form one substance, but are merely mixed together, yet the proportion of each of the three first is very constant. The proportion of water varies, and may increase with the temperature. If, when the air is saturated with the moisture, the temperature falls, the excess of water is deposited as rain, dew or mist. When the air is dry—that is, free from an excess of moisture—any foreign gas that may be added to it is rapidly taken up, and so diluted. If, on the other hand, there is excess of moisture, and the foreign gas is soluble in it, it is thereby arrested and not subject to indefinite dilution. Each particle of extraneous water is saturated with the gas, and, holding it, prevents its diffusion.

The smoke of our fires, arising from an incomplete combustion of bituminous coal, consists mainly of carbonic acid, sulphurous acid and finely-divided carbon. If this smoke is added to the air in fine weather, when the air is not surcharged with moisture, the two named acid gases mix freely with it, and become so much diluted that in ordinary cases their presence is not perceived, and the carbon itself is carried by the wind to great distances, and, being more dispersed, it is felt less as an evil. When, however, the air is charged with excess of moisture, which does not fall as rain but

remains suspended as fog, then the addition of smoke to it has a much more painful effect. The sulphurous acid is dissolved in the vesicles of water, each minute globule arrests the gas, preventing its dissipation and dilution, and so becomes itself a centre of corrosive action. The carbonaceous matter is likewise arrested and concentrated, until we have the painful town fog with its yellow tint and sulphurous flavour.

It must here be noticed that there are two main sources of the smoke of towns. These are—first, furnaces in factories, which supply the long trail of black smoke too plainly visible from high chimneys; secondly, the less concentrated, but more ubiquitous smoke of the domestic hearth.

To take first the smoke of the factory chimney, it has been said that this consists of two parts—namely, the sulphurous acid arising from the combustion of the sulphur, found more or less in nearly all coal; and, secondly, the black or smut, which comes off when there is incomplete combustion.

We are painfully conscious, here in London, of the presence of this acid in the time of fogs, but we may be thankful that it is so little when we compare it with the much larger amount present in the air of some more manufacturing towns in the North of England. It is true that manufacturing is largely carried on in and about London, but the factories are chiefly in the outskirts, and are so far separated from one another that the concentration found elsewhere is avoided. Also, it should be noticed that the class of manufacture carried on in London is not that which requires a large quantity of coal. It would not pay to carry on alkali works, the

smelting of metals, and such processes in London, owing to the higher price of coal, also of rent and labour.

To make the proposed comparison with a more manufacturing town, let us take St. Helens, in Lancashire, a place well known as an important seat of the chemical manufacture of copper and lead smelting, and of glass making. I will quote for this purpose from my report under the Alkali Act for the year 1891 (page 19). The following calculation has been made to show the amount of acid gas thrown annually into the air of St. Helens. It is nearly all either sulphurous or sulphuric acid. The hydrochloric acid escaping from the alkali works is taken as its equivalent of sulphur acids and added with the rest. There is then:—

	Tons Sulphur per Annum.	
From copper and lead smelting works	11,480	} 19,313
„ glass works	7,500	
„ polishing powder furnaces	333	
„ coal burnt ($1\frac{1}{2}$ per cent. of 1,040,000)...	—	15,600
„ Chance-Claus process	—	620
„ sulphuric acid chambers	173	} 575
„ alkali works	402	
Total	36,108	

This sulphur is burnt and passes into the air as sulphurous acid, some of it as sulphuric acid. Taking it as sulphurous, the amount would be 72,216 tons, or if, by further oxidation, it is converted into sulphuric acid, it must reach 110,580 tons, an enormous amount to be sent into the air in the course of a year. It will be seen, however, that the portion which comes under the control of the Alkali Act is but a little over $1\frac{1}{2}$ per cent. of the whole. It is evident, therefore, that if means could be found for restraining the escape of the sulphurous acid from the sources specified as completely as the discharge of acids liberated in the alkali works is prevented, a very great difference would be experienced in the atmosphere of the district.

Calculating in the same way the acidity of the air of London, it will be seen how greatly the comparison is in favour of the latter. The amount of coal burnt in London is about 1,250,000 tons; it is less sulphurous than that burnt in St. Helens, containing about 1 per cent. of sulphur. This may be taken as the one source of anxiety in the London air. In regarding the effect which this may have on vegetation, one must consider the rate of coal combustion during the summer months. This may be taken as one-fifth of that during the whole year, as the coal smoke in London is almost wholly that of house fires. It may be said, therefore, that the summer acidity is represented by 1 per cent. of the fifth

part of the total annual coal consumption, or 2500 tons sulphur. This amount is spread over the large area of London, say 15 miles square or 225 square miles. That gives a little over 11 tons sulphur per square mile during the summer, and 44 tons during the winter months. In St. Helens, on the other hand, the coal is chiefly burnt for manufacturing purposes, and is therefore more evenly distributed throughout the year. The area covered is about three square miles, so that there is sulphur at the rate of 12,036 tons per mile, as against 11 tons in London. This comparison may explain the great difference to be observed between the condition of the trees in London and those in the manufacturing towns of the north. It explains, too, the wide extent over which the injury to vegetation is perceived. It is obvious that the whole of the sulphurous acid discharged in the air of St. Helens is not absorbed by the soil or plants found within its limited area of about three square miles. It is, on the other hand, carried far away on the wind, so that a great extent of country is affected by it. The same may be said of London. In fine weather and when there is wind the smoke is carried far afield, and is not all absorbed on London soil. In the winter, however, when the consumption of coal is increased fourfold and the fog-laden air is still, then the sulphurous acid in the air is too plainly perceptible, and, added to the soot and tarry matter resulting from the imperfect combustion due to our open fire-grates, makes that sad mixture known as London Fog.

It may appear surprising to some to hear of the very large quantities of acid gases which are discharged into the air from the combustion of coal and from manufacturing operations. Even the modest amount of fifty-five tons of sulphur per square mile annually accorded to London seems an enormous amount when we consider that it represents 165 tons strong sulphuric acid. It is well, indeed, that in fine weather this is carried away in the air far afield; and we need not be surprised at the acid character of the air when fog retains it, holding it, as it were, to our nostrils.

As has been noticed, it is fortunate for our trees in London that, while they are in leaf, there is less coal burnt and less acid in the air; also, the summer is not the time of fogs. But during the winter doubtless the bark absorbs much acid; and this may be a reason why the plane-tree, which ever renews its bark, is so much at home in our London squares. It may be noticed, however, how inferior the grass is under these trees, owing probably to the acid washed off the branches and down the trunk. It would be found that in such places the

grass would be much revived if the lime siftings of brick rubbish were scattered over it.

A practical cure for this source of air pollution, a means of arresting the sulphurous acid produced by the burning of the sulphur in coal, has not yet been found. Unfortunately, this acid is but sparingly soluble in water, so that the application of this universal cleanser is of little use. Moreover, as the exposure to water would necessarily cool the smoke, this would interfere with the draught of the chimney, upon which combustion must depend.

Let us now consider the carbonaceous or black part of the smoke from a factory chimney, and speak of means for its prevention.

Some will invite us to consider means of burning it, or otherwise suppressing it when generated. The practical problem which presents itself to my mind is, rather, how shall black smoke be prevented, its formation avoided? In other words, how shall the combustion be made so complete that there is no smoke or unburnt portion?

The most familiar example of a very smoky fuel is the ordinary paraffin oil of our lamps. Yet we are accustomed to burn it with a bright, clear flame, quite free from smoke. It is well known that, if the lamp is defective and the air-supply is insufficient or ill-directed, smoke is produced. It would be a clumsy and most wasteful arrangement if the lamp were allowed first to produce smoke, and subsequently, by the use of some secondary fire, to complete the combustion of the soot, or by means of some filtering arrangement in the chimney, to arrest it.

No; the combustion must be completed once for all, and the conditions which are necessary to this are the following:—

First, there must be a sufficient quantity of air; secondly, the air must be brought into intimate contact with the fuel, whether solid or gaseous; thirdly, the mixture of air and fuel must be kept for the necessary time at an incandescent temperature.

If these three conditions are observed, it is not difficult to predict that complete combustion will take place, and it is also certain that, if any one of these conditions is wanting, the combustion will be incomplete. The sign of incomplete combustion in the case of a bituminous or gassy coal, will be the formation of soot, and possibly also with that of carbon monoxide. In the case of a non-bituminous fuel, such as coke or anthracite, carbon monoxide would be produced.

The problem is, then, to construct and work a

furnace so that these three conditions shall be continually observed.

First, as to the admission of air. There must be enough of it; but, on the other hand, it must not be extravagantly supplied, for every cubic foot of air which passes through or over the fire unused, goes away at a high temperature, thus causing a loss of heat. If possible, the quantity of air should be so adjusted to the amount of fuel to be consumed that all the fuel is burnt, while there is no air in excess. Such perfect arrangements are, of course, not to be expected in practice, an excess of air must be allowed. The excess is sometimes brought as low as four per cent. of the gases of combustion, but more often ten per cent. or even fifteen per cent., is found, showing that two or three times as much air has been used as was necessary. Even the admission of this large excess of air to the furnace is, however, no guarantee that complete combustion has been effected unless Rule No. 2 has been observed. That is to say, this air will be of little use unless it has been brought into intimate contact with the fuel. Too often sufficient arrangements for effecting this are wanting. The air is allowed to flow over the fire and to pass in parallel streams with the unburnt gases, yet never mixing with them; or often it is allowed a too free ingress near the bridge of the furnace, and to pass unmixed with the gases into the cooler flues where combustion is impossible. The necessity, indeed, of keeping this rule is obvious, yet it is most difficult of observance. It is easy to admit the air, but not easy to insure that the whole of it should come in contact with the fuel, the furnace itself is comparatively small, the speed of the gases is great, and the air in an instant is carried away from the scene of combustion. The third condition essential to complete combustion is that, if a mixture of the air and inflammable gases is effected, that mixture shall be heated to a temperature of incandescence. But too often the necessity of this is lost sight of. In steam boilers, usually the gases driven off from the bituminous coal of the fire, together with sufficient air for their combustion, are carried at great speed over the bridge into a flue surrounded with water, where the temperature is such that ignition is impossible. The flame that was started is quenched, with the result that the more combustible part, the hydrogen, alone is burnt, while the carbon is deposited in the form of soot. This is carried along by the stream of heated gases, and reveals itself at the chimney-top as black smoke.

I think that the three conditions I have pointed out

as being essential to complete combustion should be ever borne in mind by those who would construct a smokeless furnace.

Many attempts, more or less successful, have been made towards the attainment of this end. Let us regard first the ordinary method of stoking the fire of a steam boiler. A man probably has two or three boilers to attend to. When a sufficient time has elapsed since the last charge of coal was thrown on, he opens the fire door. This admits an inrush of cool air, which, passing through the flues, robs the boiler of heat. It also cools the parts about the bridge, making them less able to ignite the gases which will now be generated. The stoker then throws on six, or even ten shovelfuls of coal; this also at the moment lowers the temperature. He closes the door, and now a large quantity of carbonaceous gas is liberated, increasing so suddenly the volume to be carried away by the flues and the chimney, that the draught for a while is paralysed, and at the very moment when a larger supply of air is needed, less is supplied. Even the air which is present, as also the smoky gases, is at such a low temperature, that ignition does not take place. The stoker now proceeds to his second fire, which he treats in the same way and so proceeds along the row. The effect is, of course, a torrent of black smoke from the chimney.

It may be suggested that an obvious cure for this is a more frequent and more moderate supply of coal. This would, doubtless, be a step in advance; but time is pressing, the stoker must attend to his full number of fires, he cannot be always throwing on small quantities of coal. Even this would be attended by the evil resulting from the more frequent opening of the fire door.

These considerations plainly point to the advantage that may be derived from some mechanical contrivance for maintaining a constant supply of coal to the fire without need of opening the door, or otherwise disturbing the arrangements.

(To be continued.)

The Dietary of an Italian Peasant is composed of black bread, beans, cabbages, onions, and wild herbs, with a small quantity of inferior oil, fruit, and macaroni. Tea, sugar, and other similar commodities, which have become daily household necessities amongst the poorest of the working-classes in England, are absolutely unknown to the Italian field-worker.

INFLUENZA: ITS HISTORY, NATURE, SYMPTOMS, AND TREATMENT.

(Concluded from page 409.)

WHAT has been said in the previous articles* has reference only to mild, common epidemic influenza, but too often the course of the disease is not of so benign a character. This has been noticed during the present epidemic to a large extent. The fever is more marked, the body temperature being excessive, and the chest complications are serious, of themselves giving rise to grave apprehensions. The blood not being properly oxygenated in the lungs, owing to their impaired condition, the heart, already enfeebled by the general debility, performs its functions with difficulty, while the circulation of impure blood through the brain leads to disturbance of the mental faculties, amounting to partial delirium. In very severe cases there is one symptom which we have not seen mentioned anywhere in print, viz:—frequent cramps of the large muscle forming the calf of the leg, reminding those persons who have had the ill-fortune to suffer from both complaints, of the similar condition which occurs in its Asiatic congener, the cholera.

The pains in the limbs do not pass off so soon in some cases as in others, and rheumatic complications of a distressing nature continue for a considerable period.

Other occasional complications that have been observed are affections of the ears, such as inflammation of the middle ear, and discharges from the outer passages of the ear; while the occurrence of ulceration of the cornea has been frequently commented on. Having regard to the extent to which the eyes participate in the earlier stages of this disorder, it would be singular if, in some cases, these sensitive organs escaped with only temporary ill-consequences.

In approaching the all-important subject of treatment, we are reminded that this is divisible into preventive and curative. Quacks of all kinds are, as usual, in such times of epidemic disorder, coming forward with the most idiotic suggestions, backed up by the most unblushing falsehoods, for the purpose of inducing the ignorant, the unwary, and the panic-stricken to buy their self-vaunted nostrums. "Your money or your life!" was the cheerful observation with which the dashing highwayman of old saluted his victim; the quack has little compunction about the possible substitution of the

* These appeared in *HYGIENE* of November 24th and December 1st.

conjunction "and" for "or," so long as he is able to secure the victim's coin, the loss of health or life being mere incidentals from the quack's point of view.

How is it practicable, indeed, using the term in its strictest sense, to *prevent* an attack of influenza? To prevent that which may, at the very moment that one is thinking of the disease, yet least dreaming of its attack, be rising up from the ground around him, waiting for him at some street corner, or swooping down upon him from the cloud, like a hawk swiftly descending on a doomed, unconscious bird.

But though one cannot prevent an attack of influenza, he can be prepared for such a contingency. At all times, but more especially in those of epidemic outbreaks, people should be careful as to the sanitary condition of their dwellings (in numerous instances during the present epidemic, the houses where the earliest cases showed themselves were notoriously deficient in their sanitary arrangements), scrupulous as to cleanliness, both personal and domestic; live fairly well, whilst avoiding anything approaching excess, either of eating or drinking; count air, light, and exercise as Nature's three grand medicines (influenza, similar to other epidemic diseases, attacks first and most severely those whose health is impaired by confinement within doors in a close, vitiated atmosphere); keep the functions of the body in regular order; and wear warm woollen underclothing.

During epidemic outbreaks various practices have been resorted to in different countries for the purpose of checking their spread. The most universally adopted has been that of lighting huge fires to purify the air. If the air were stationary, or if the infecting portions of it would spontaneously detach themselves and submit to the action of the flames, some good might be expected to result: but the practice is expensive, and dangerous too, when, as has been known in uncivilised communities, the persons ill with the disease that is rife are tossed upon the fires as propitiatory to some unknown evil influence. The most remarkable system which has ever been had recourse to for abating an epidemic is that which was followed, with equivocal success, in Naples during the great cholera epidemic. The Italian Government, alarmed at the ravages of this distemper, sent a staff of medical men to cope with it. Very soon after their arrival, the Lazzaroni, as superstitious as they are ignorant, and as ignorant as they are dirty in their habits, formed a violent antipathy to the new-comers (accusing them of inducing the cholera, of poisoning the wells—already fatally poisoned through the utter disregard of the lower-class Neapolitans for sanitary decency—and so

on), and maltreated the doctors when visiting the sick. Ordinary ill usage (an ignorant, brutal crowd always puts its arms and legs into active service more frequently than its brains) not proving sufficient to deter the medical staff from doing their duty, the Lazzaroni hit upon an ingenious and original method of getting rid of the doctors. At every convenient opportunity they fired upon the medicos (there seems a sort of analogy between Neapolitan "pot-shotting" and African "hot-potting," *vide* Rider Haggard's "She," as a means of intimating to people that they are unwelcome) with such marked aim and success that the doctors, having come to Naples to treat cholera in others, not gun-shot wounds in themselves, deemed it prudent to effect a retreat. The local saying, "See Naples, and die," is very good when properly applied, but it should be left optional for the visitor to interpret it in his own way, as Mark Twain did.*

Very much depends, both as regards the severity and the duration of an attack of influenza, upon promptitude in dealing with the illness directly it shows itself. The medical writers of antiquity gave utterance to many significant sayings, which grew into aphorisms. One of the best and soundest of these was, "*Venienti occurrere morbo*," "Run to meet the coming disease." An hour or two gained by treating a case promptly will always save time and suffering, not unfrequently even life, by checking the unfavourable symptoms at their commencement.

Directly any one feels catarrhal symptoms coming on he should at once get home, if away from his residence, have a hot body-bath (or foot-bath), if the prostration should not already have become too great to allow of the exertion, go to bed in a moderately warm room, and with a sufficiency of bed-clothing, without their weight being such as to fatigue him, and endeavour to set up free action of the skin. With this object in view, he should take some warm drink—hot wine and water, coffee, tea, or milk—apply a hot-water bottle to the soles of the feet, hot flannels to the upper part of the back, between the shoulder blades, and draw the bed-clothes well over him. This treatment will generally set up copious perspiration. If not, the process should be repeated

* It is satisfactory to note that Naples can never again be the scene of such a fatal epidemic as that of which we have been speaking. Great sanitary improvements have been carried out by the authorities; broad open streets made through the old slums, and decent dwellings erected in place of the rotten shanties in which the poor Neapolitans lived previous to these alterations.

with a newly-filled bottle and fresh flannels. If, as will probably be the case, the patient has been seized with the complaint at a distance from home, and chest troubles should already have begun to show themselves, a mustard plaster or a mustard leaf should be applied at the upper part of the chest in front, or between the shoulder blades instead of the hot flannels or water bottle.

A moderate fire should be kept in the bedroom in order to maintain an even temperature. We have been in the habit for a considerable time of recommending peat, for bedroom fires, as possessing various advantages over coal. It is cheap, for a block of dried peat, rather more than half a foot square, costs only a halfpenny. Once properly ignited it burns steadily until the whole of it is consumed, so that it does not need replenishing so often as coal. It is noiseless; a matter of no small importance in a sick-room, where the frequent putting on of coals, and the still more frequent dropping of cinders, or of unconsumed coal, constitute a nuisance to which every invalid who has ever had a fire in his bedroom can testify. We were struck some time ago on making a visit to Kensington, with an instance of wifely solicitude for the comfort of the patient, who was suffering from a serious nervous malady. The least sound worried and irritated the poor fellow, and in order to diminish the annoyance created by the replenishing of the bedroom fire, his wife had instructed the housemaid to carefully envelop the coal, broken small, in little paper bags before bringing the scuttle upstairs. But this ingenious expedient only minimised the evil, it did not wholly obviate it; for paper bags will burn when brought into contact with fire, and pieces of coal and cinders will fall out of a grate whenever an opportunity presents itself, while nervous patients will start in bed every time that this natural result of the law of gravitation occurs. So we advised this good lady to send to the Peat Fuel Company for a supply of their sun-dried peat blocks, and the use of these in the place of coal quickly earned the thanks of both the patient and his wife, while the complete quiet of the room almost as rapidly effected a marked improvement in the former. Next,—and this is a point of importance in the case of bedroom fires which are kept in all night, or of fires which during the day time are not under constant inspection—peat is safe. There is no crackling, and no possibility of embers shooting beyond the limits of the fender, to which so many accidental fires can be traced. Finally, while the gases given off from burning coal are detrimental to health in a closed room, producing feverishness, parched

throat, headache, and lassitude, peat smoke is admittedly healthy. It has valuable antiseptic properties, and exercises a soothing effect upon the lungs and air passages in bronchial and similar affections.*

The diet adopted during the first few days of an attack of influenza should be light, though nutritious, and till the brunt of the fever is over, almost entirely fluid; milk, gruel, beef tea, and such-like articles of food for invalids. Indeed, if the patient's inclination as regards diet is consulted, it will be seen that he loathes the sight of solid food, his appetite for the time being having completely gone, and until the fever has abated, and the digestive organs are restored to something more like their natural condition, his feeling will best indicate what to give him.

While speaking of the patient's dietary, something must be said concerning the use or disuse of stimulants. "Avoid alcohol," certain medical contributors to the daily papers on the subject of influenza keep on saying in a most lugubrious manner, without so much as troubling to explain what form of alcohol they refer to. Avoid alcohol; yes, by all means if, by that very vague term, they wish to imply an intemperate or immoderate resort to intoxicating drinks; but if they desire to convey the opinion that no stimulants ought to be given for any reason whatever, then we unhesitatingly assert that they are in the wrong, or that they have not taken sufficiently into account the utter, and sudden prostration of the victim in a severe attack of influenza. A glass of wine, some port or claret negus,† or good whiskey or brandy well diluted by the addition of warm water, will not unfrequently prove a valuable auxiliary in sustaining the patient's bodily strength and mental energy, and in

* When the late Mr. John Bright lay seriously ill in his last illness, we noticed that, towards the end of his fatal malady, the daily bulletins often mentioned the circumstance of his having passed a bad night, with the usual consequences. We therefore procured a quantity of peat blocks and sent them to Dr. Hayle, Mr. Bright's friend and indefatigable medical attendant, with a request that he would induce his illustrious patient to allow a trial of them. This was accordingly done, and we had the pleasure a short time afterwards to learn from Dr. Hayle that his patient, as well as himself, had been satisfied with the result obtained.

† With, we would add, plenty of cinnamon. Not only is the spice agreeable to the patient's palate, but according to the researches of Dr. Chamberland, in Professor Pasteur's laboratory at Paris, essence of cinnamon exerts as powerfully a destructive action on microbes as corrosive sublimate would do. In fact, no living disease-germ can resist its antiseptic effect for more than a few hours. Further, it should be remarked, cinnamon is harmless when taken, whereas corrosive sublimate is a strong poison. A strong decoction of cinnamon has long been regarded as a good preventive when malarial and other fevers are prevalent.

inducing him to take some simple nourishment. It was currently reported in connexion with the Prince of Wales' serious illness with fever, that after a most anxious period of suspense as to whether the crisis would take a fatal turn or not, the first indication of improvement in his condition was his asking for, and drinking with obvious relish, a glass of beer. From that moment the Prince rapidly became convalescent. Had one of the individuals to whom we refer been at that critical moment at the Prince's bedside, and waved away the glass with the sententious ejaculation, "Avoid alcohol," the probability is that the succession to the British throne would now have been in other hands than those of the present heir. We are as firm advocates for temperance as most persons, but we must protest against advantage being taken of the feelings of people painfully wrought upon by the epidemic now throwing a gloom over the whole country, to institute an indiscriminate teetotal crusade, and to deprive sufferers of the great benefits to be derived from a valuable adjunct to treatment, when used with judgment and moderation. If the fever should run very high, the face be much flushed, and the skin assume a dusky red hue, stimulants should be altogether withheld, or resorted to with precaution; otherwise, used as we have remarked, there is no occasion to unreasonably frighten people.

In influenza, as in all other disorders affecting the lungs and air-passages, it will be found to exercise a salutary effect upon the disease if the patient is allowed at times to breathe air mixed with the steam from boiling water. The ordinary domestic way of carrying this out is to let him inhale the vapour given off from a narrow-mouthed jug containing boiling water, but this is inconvenient in application, and the same objection holds against various apparatus which have been devised. What is really wanted is some apparatus which is almost automatic in its nature, which shall be uniform and continuous in its distribution of the warm, moist vapour. We have lately had brought under our notice a bronchitis kettle superior to any that we have ever seen. It consists of a flat kettle, constructed of tinned steel plate, with a steam distributor 4 ft. 6 in. long, and containing fifteen pints of water. When this kettle is placed upon the fire in the invalid's room and the water boils, the steam is projected, in the form of a minute spray, in whatever direction is desired. The makers of this apparatus have introduced an excellent addition, viz., a glass gauge, indicating at a glance the exact height of the water in the kettle. With a little addition this apparatus might be still further improved, so as to make it available

for the inhalation of nearly all the remedies which are now administered in that way.

Inhalation is one of the oldest methods of medication; it was known to and practised by Hippocrates, the Father of Medicine, 400 years before the Christian era, and was much in vogue amongst the Greek and Roman physicians in the treatment of catarrh, cough, and different lung disorders. It is a singular coincidence that one of the oldest medicinal agents employed as an inhalant, was the vapour of pine-cones, particularly in catarrh and the incipient stages of consumption and asthma, and at the present time this remedy is frequently resorted to, with beneficial results, the main difference between 'ancient and modern' being that, while the former had to slowly burn the cones in order that their patients might inhale the fumes given off, the moderns avail themselves of the resources of chemistry, by which the delicate volatile essences of various kinds of pine can be separately obtained, and afterwards employed in the form of spray, &c. The chief of these resinous essences are Eucalyptol, from the *Eucalyptus*, commonly called the blue-gum tree, of Australia; Pinol, whose source is sufficiently indicated by its name; also Terebene, obtained from turpentine, and Sanitas, derived from a similar source. Each of these substances possesses decided antiseptic properties, as well as expectorant and stimulating properties when brought into contact with the mucous membrane lining the air passages; and all have consequently come into great favour in dealing with the present epidemic. They can be variously utilised; frequently inhaled from a small bottle, in which way they will abate the force of an attack—at times, even avert it; in the form of spray, distributed by the aid of a spray-producer; internally (in doses of two to five drops), best administered by placing the drops upon a lump of sugar; externally, rubbed upon the surface of the body as liniments. Referring to this last-named mode of medication, we may mention that, in the cases of patients too young or delicate to take much medicine, satisfactory results may be obtained by rubbing any one of these substances which we have enumerated upon the front part of the throat and the upper part of the chest, as the little patient benefits not only by a portion of the drug being absorbed into the system, but also by inhaling the other portion as it volatilises through the action of the warmth of the body.

Equally valuable with antiseptics in the treatment of influenza are antiperiodics, which end by subduing the exhausting fever that forms so prominent a feature of the disease, and by reducing the local pain. The two best

of these are:—An old friend, quinine, and a newer acquaintance, antipyrin. The dose of the former is from one grain upwards, in solution, according to the age of the patient, and the relative frequency with which it is administered; while antipyrin is most conveniently given in the shape of tabloids, each of which contains five grains, that being the average dose for an adult. A desirable precaution is to administer a dose of some aperient previous to commencing the administration of either quinine or antipyrin. Both of these, but especially the latter, should be taken with precaution; in fact, it is desirable not to take either for any length of time, except under medical advice.

As the patient progresses towards convalescence, he can begin to sit up after a few days; but care should still be exercised as regards maintaining the uniformity of temperature of the room in which he is placed. He can commence to take solid nourishment, and, indeed, should live well. When he can safely go out, he should get into the open air and have moderate exercise, bearing in mind that for a considerable period he will be subject to the possibility of a relapse, and that a second attack is almost always more serious than the previous one.

It will be seen that, in giving an outline of the treatment to be adopted in influenza, we have limited our attention chiefly to typical cases of ordinary character. Whenever any troublesome complications manifest themselves—and, indeed, in most cases—it will be advisable to secure the personal advice and supervision of a medical practitioner.

EDITOR.

THE EMPLOYMENT OF WOMEN.—No. II.*

Yorkshire, Lancashire, Cheshire.—The textile industries of Yorkshire give occupation to a large number of women, particularly in the following districts:—Huddersfield, Bradford, Halifax, and Leeds, with which last-named may be included Batley and Dewsbury, where the woollen trade is carried on. Miss May E. Abraham was the lady Assistant-Commissioner appointed to report on female workers in these industries, and, indeed, on all the others referred to in our present article.

The branches of manufacture into which the Assistant-Commissioner inquired were those of shoddy and woollen,

worsted, cotton, and silk goods. As a rule, women are paid lower wages than men, on the ground that they cannot perform so much heavy work; but in the cloth mills of Bradford, Huddersfield, and Leeds men and women, engaged in the same kind of work at the loom, receive the same pay. There seems to be a tendency with all employers of weavers to substitute women's labour for that of men. How far this results from paying women on a lower scale is not mentioned.

With regard to the effect of certain processes upon the health of the female operatives, the Assistant-Commissioner names the following as those which are injurious:—In woollen manufacture, combing; in shoddy manufacture, rag sorting, picking, and carbonising; in rug manufacture, weaving; and in silk manufacture, gassing. The wool combing is objectionable, on account of the great heat of the sheds in which the operatives in this department work, often nearly 100°. A similar state of things is noticeable in the silk manufacture in the gassing room, so called because here the thread is passed rapidly over gas jets, in order to destroy the loose fibres; the air becomes not only intensely hot, but it is also very impure, through the admixture of unburnt gas. In both cases a good deal could be done by efficient ventilation with powerful fans; in fact, the Assistant-Commissioner mentions one mill, that of Messrs. Clayton, Murgatroyd, and Co., at Halifax, where this system of ventilation is adopted, and the effects of gas combustion are consequently scarcely perceptible. In rag sorting, picking, and carbonising, large quantities of noxious dust are thrown off, especially when foreign rags are used, as these arrive in a filthy condition, having been closely packed for many months. New workers are almost sure to suffer from illness, technically known as "shoddy fever." In connexion with these processes, it is evident that where the employers study the health and comfort of the operatives, much may be done to diminish the risk to the women employed. For instance, Mr. Eli Townend, of Ossett, has much improved the state of the sorting and picking shed by the introduction of fan ventilation; and another employer, Mr. Mark Oldroyd, of Dewsbury, has fitted up machinery for thoroughly shaking the rags before the sorters begin to handle them. It may be mentioned here, incidentally, that in the West of England, the rags used in the shoddy and flock mills are washed before sorting, while the rooms are lofty, and well ventilated; the results being a marked advantage to the women employed, shoddy fever being absolutely unknown amongst the workpeople. Carbonising, necessarily involving the use of chemical agents, has a detri-

* No. I. of this series appeared in *HYGIENE* for November 24th, and dealt with numerous occupations of women in London, Birmingham, Bristol, Luton, Walsall, Dudley, and the Potteries (Staffordshire).

mental effect on the health of the women, through the closeness of the atmosphere in which they work, not infrequently further vitiated by the escape of hydrochloric acid gas, owing to defective pipes. In rug-weaving the weavers are exposed to great quantities of dust floating in the air, as the clippings from which the rugs are made are cuttings swept up from the floors of tailors' workshops.

With respect to mill hands, the chief danger to them arises out of the frequent accidents caused by shuttles breaking and flying off with great force. Numerous patients are admitted at the Bradford Eye Hospital, who have sustained serious injuries to the eyes, causing loss of vision, through accidents of this kind, and sometimes even fatal results occur, when an unfortunate worker happens to be struck on the head by a flying shuttle. Here, again, humane employers have seen their way to minimising, or wholly removing, the liability to accidental injury by fixing up shuttle guards. Messrs. Martin, of Halifax, and Messrs. Harrison & Shaws, of Leeds, deserve honourable mention for their praiseworthy efforts in this respect. Many firms profess their willingness to introduce shuttle-guards into their mills, but, at the same time, excuse themselves on the ground that the operatives dislike the use of guards; a lame excuse, too often put forward to cover selfish objections to pecuniary outlay, by many manufacturers besides mill-owners.

The sanitary accommodation in the great majority of the mills is lamentably bad, and the effluvia escaping into the workrooms very offensive; a circumstance which, added to the frequent foulness of the atmosphere through overcrowding and defective ventilation, must act prejudicially on the health of the persons employed.

The great cotton industry of Lancashire and Cheshire forms the subject of a separate inquiry. The Assistant-Commissioner visited more than 170 mills, and also received information from different persons acquainted with the work and condition of the operatives.

An extensive system of fines prevails in these two counties, as well as in Yorkshire, creating a good deal of dissatisfaction amongst the operatives. Though not large in amount, these deductions from wages are often levied for trifling matters, such as for brushes, oil cans, oiling the machinery—matters which should properly be defrayed by the mill-owners; while the system varies in different localities, and, as conducted, leaves too much room for favouritism, or the opposite, on the part of the overlookers.

The chief sources of injury to health are similar to those already described in speaking of Yorkshire; in

addition to which the excessive steaming and "dagging," *i.e.*, covering the floors of the sheds with water, so as to get a moist atmosphere, to damp the material, cause much inconvenience and illness amongst the workpeople. The sizing used for cotton warps, to counteract the glutinous character of two largely-employed ingredients—flour and tallow—is also detrimental to the health of the operatives, as the size contains chloride and sulphate of zinc, and chloride of magnesium, which, when inhaled in the form of dust continually flying about the sheds, produce irritation of the throat and lungs, and predispose to chest affections.

White Lead is a manufacture to which much attention has, of late, been directed, and it has been specially dealt with in the articles on "Noxious Industries" (HYGIENE, Vol. VII., Nos. 4 and 5). Unhealthy as the occupation is, the workpeople would suffer far less if the Government regulations were properly carried out, instead of being too often either wholly neglected, or followed in such an unsatisfactory manner as to be next to useless. A large number of women are engaged in this manufacture at Newcastle-on-Tyne and in Sheffield. From statistics which have been supplied, it appears that within the past five years 135 cases of lead poisoning have been admitted into the Newcastle Infirmary, *viz.*, 94 women, and 41 men. Fatal results occurred in 8 of these cases—5 women and 3 men. Nor do these figures represent the entire amount of injury done to health, because many persons who have been working in the white-lead factories leave through their health giving way; and, as their strength is thus undermined, they fall victims to other affections, which are entered upon the registration certificates as the cause of death.

It is now an acknowledged fact that women are more susceptible to lead-poisoning than men are, partly due, no doubt, to the circumstance that their clothes pick up the dust more than male attire would do. Dr. Oliver, physician to the Newcastle Infirmary, who has had much practical experience in this matter, not only emphatically endorses this fact, but he also shows that, in addition to their greater general susceptibility, women suffer at an earlier age than men (out of the 135 cases admitted into the Infirmary there was no man under 23 years of age, while no fewer than 49 of the female workers were under that age); and he adds, "acute lead-poisoning accompanied by cerebral symptoms is much more fatal amongst women than men."

Mr. Slaen, the Manager of the Mersey White Lead Company, has discontinued the employment of women in the most dangerous portions of the works. The

Assistant-Commissioner reports that at the factory belonging to this Company all possible precautions are efficiently seen to, forming a strong contrast with some of the factories visited. An improvement introduced by Mr. Slaen is worthy of imitation elsewhere. Concrete flooring has been substituted for wooden, greatly minimising the amount of dust thrown up from the floor by the vibration of the machinery. Another practical improvement, which emanates from Mr. Hutchings, manager of Messrs. Cookson's factory (also highly spoken of), is that no persons are employed in drawing the "stoves" in which the lead is dried, until after they have breakfasted; medical experience having shown that the animal system is less susceptible to the influence of lead after food has been taken. But the greatest improvement of all is the abolition of the stoves and the substitution of another system not open to the objections attaching to the use of stoves. This was done three years ago at Messrs. Cookson's factory, with marked good results. At Messrs. Lock Blackett's works, a new process of drying the lead by rapid motion has been tried and found satisfactory, both as regards the material turned out and the health of the operatives.

The *Confectionery, Hosiery, and Lace Trades* afford a much more suitable and healthy occupation for women than such industries as the lead-making, or heavy trades like carpet-weaving, &c., and we pass on to the report concerning them, with a degree of relief.

The wages necessarily vary, according to the season of the year and the general state of trade; but the same remark would apply to most industrial callings. The hours in confectionery factories are, as a rule, we are told, below those imposed by the Factory Act. The sanitation in most of the factories of this class visited by the Assistant-Commissioner were found to be good, the rooms being usually lofty, and the ventilation well looked after. In about one half accommodation is provided for the women to have their meals without leaving the building, while in some there are restaurants where different articles of food can be bought at cheap rates.

Speaking of food, we are reminded that in the hosiery manufacture, which gives employment to a large number of home-workers, the fact has been exposed that some of the middlemen persistently commit breaches of the Truck Acts by paying only or partly in kind. The workers are virtually helpless, and are consequently fleeced by the middlemen, who charge higher prices than the shopkeepers would, while the articles are of relatively inferior quality, as evidenced by the following table:—

Goods.	Truck Prices.	Ordinary Prices.
Black tea	2d. per oz.	1½d. for 2 ozs.
Kiel butter.....	1s. 6d. per lb.	1s. per lb.
Bacon.....	9d. per lb.	6d. per lb.
Cheese	8d. per lb.	6d. per lb.
Flour	1s. 7d. per stone	1s. 6d. per stone

As regards the sanitation of hosiery factories in the Nottingham and Leicester districts, fifteen (three of which have the electric light) are reported to have good ventilation, sixteen fairly good, and nineteen bad: in other respects their sanitary condition is fairly satisfactory. Some provide accommodation and facilities for the women to have their meals on the premises; others do not even let them have hot water for making their tea.

In this respect matters are better arranged for the lace workers. The ventilation of most of the factories is not up to the mark, and this unhealthy condition is added to by the heat and smell arising from the gassing machines in operation in the lower part of the building. Other points affecting the health and comfort of the women are too often overlooked or ignored.

(To be continued.)

THE PREVENTION OF PHTHISIS, OR CONSUMPTION.

Memorandum drawn up by the North-Western Branch of the Society of Medical Officers of Health, as to the best means of Prevention of Phthisis, or Consumption.

1. It has been abundantly proved that "phthisis," or "consumption," is an infectious disease.

2. It does not appear that this disease is very, if at all, infectious through the breath of a patient; but it is quite certain that it is infectious by means of the *sputum* (expectoration) which a sick person coughs up from his diseased lung.

3. The means for preventing the spread of phthisis, therefore, from person to person, are made very simple by reason of the infected material being easily recognisable.

4. The manner in which phthisis is usually spread from one person to another by means of the sputum is as follows:—

(a) A consumptive patient coughs up a quantity of sputum, in which are enormous numbers of the specific germs, *bacilli tuberculosis*;

(b) The sputum lodges wherever it is spat on, and there dries;

(c) When dried the sputum is usually pulverised and floats in the air as dust;

(*d*) The germs contained in the sputum, though dried, are still living, and able to infect the air in which they are suspended ;

(*e*) The infected air, when breathed, is liable to cause phthisis. This is more particularly true of people who are already suffering from phthisis, and whose recovery is thus prevented.

5. All phthisical sputum must, therefore, be burnt or efficiently disinfected, if any decided measure is to be taken to prevent the spread of phthisis from person to person :—

(*a*) The sputum from consumptive people should be at once burned, by being spat into the fire, or, better still, spat into a piece of paper or a rag, which should be at once burned ;

(*b*) Sputum may, however, be spat into a glass or porcelain vessel, containing a 15 per cent. solution of carbolic acid, or (if carbolic acid cannot be obtained) simply some water. The contents of this vessel should be emptied once a day into the outside drain, after which the vessel should be washed with boiling water and recharged ;

(*c*) All persons affected with a cough which has become chronic should, when attending a workshop, assembly, or church, spit into a hand-glass spittoon containing the aforementioned disinfecting solution. Such a spittoon may be conveniently attached to the person ;

(*d*) No person suspected to have consumption should spit into a pocket handkerchief, or into a rag, or on clothes, unless such be forthwith burned ;

(*e*) No person, *whether consumptive or not*, should, on any account, spit on the floor or walls of any room, railway carriage, or public conveyance ;

(*f*) The eating utensils of a person suffering from consumption should be kept separate from all eating utensils of other persons, and should be washed separately from others in boiling water as soon after their use as possible ;

(*g*) The clothing of a consumptive person must be washed separately from the clothing of other persons ;

(*h*) The bowel discharges of a consumptive person should be disinfected with the aforementioned solution (*b*), and soiled linen should be at once boiled ;

(*i*) A consumptive patient should, as far as possible, occupy a separate room or rooms ; and where this is not possible, special care should be exercised in destroying the sputum and excreta of the patient ;

(*j*) The furniture of a consumptive patient's room should be as simple and plain as possible, without fluting or carving which provide lodgement for dust ; especially

should hangings and unnecessary carpets and rugs be avoided ;

(*k*) When it is settled that any member of a household is consumptive, the whole house should be at once thoroughly cleansed, including the walls and ceilings ; the furniture and floors should be washed with water as near boiling temperature as possible, and containing carbolic acid in the proportion of four table-spoonfuls to a gallon of water ; the walls should be cleaned down with the crumb of bread, the ceilings whitewashed, and clothing and bedding disinfected by steam or by boiling, as in the case of any one of the other infectious diseases ;

(*l*) The walls, floors, and ceilings of the living and sleeping rooms of persons suffering from phthisis should be cleaned and disinfected in the foregoing manner once in every two months ;

(*m*) The room or rooms of a consumptive patient should, in the event of death, be disinfected, as after death from one of the infectious diseases.

6. There are several further practical measures which may be taken to prevent the contraction of the disease, and which are not difficult to carry out :—

(*a*) A mother who is suffering from consumption should on no account be allowed to suckle her child ;

(*b*) All cow's milk, *especially that for the use of children*, should be thoroughly boiled before being drunk. There is no sort of legitimate doubt that tuberculosis in children is largely caused by the use of unboiled milk from consumptive cows. There is no truth in the belief that boiled milk loses its strength or is less digestible ;

(*c*) All meat should be thoroughly well cooked, and not be eaten underdone ;

(*d*) The lungs of all people should be more thought of and cared for by themselves than is at all common at the present time ;

(*e*) The dwellings of all people should be well and freely ventilated at least once in every day, and all dark corners and recesses therein should be kept scrupulously clean ;

(*f*) The lungs of all persons should be specially protected from the bad influences inseparable from damp and overcrowded dwellings, and from dusty occupations ;

(*g*) Some household pets (for example cats) are susceptible of tuberculosis, and if suffering from any chronic disease should be destroyed.

7. If the general public, and those who are suffering from phthisis, would undertake to put the foregoing advice into actual practice, there can be no question but that there would, in the next few years, be a marked decrease in the fatality from phthisis in this country.

Moreover, as it has been shown that phthisis, in its less advanced stages, is a *curable* disease, there is every encouragement to adopt these protective and hygienic measures for the benefit of a patient suffering from the disease.



REVIEWS AND NOTICES OF BOOKS.

Shipowners and Ships' Surgeons. By Charles Henry Leet, F.R.C.S., M.R.C.P.

Considering the unsatisfactory status and power of medical officers in the mercantile navy, it is a somewhat singular thing that no steps have been taken to remedy the fault. So thinks Dr. Leet; and still more to the purpose, he writes and agitates with an earnestness that carries conviction with it. Why, he very naturally asks, should the doctor be virtually treated as a man having no authority or power in matters upon which he alone, of all persons on board the ship, can have any expert knowledge? If he should desire to carry out any sanitary measures on board a passenger ship, he has no authority sufficiently strong to enforce such measures, even though they may be absolutely necessary in the interests of the passengers, emigrants, and crew.

Although Dr. Leet has filled the post of surgeon with credit to himself and with satisfaction to the principals of three large passenger-ship companies (as shown by the certificates given to him), yet directly he attempted to do his duty, as a sanitarian, he found himself placed in antagonism to the captain, regarded by the shipowners as a meddler (particularly when they were effected in that sensitive department, the pocket), and obliged by a sense of self-respect to retire from a position rendered so untenable.

The editor of *Truth*, with his usual readiness to espouse the cause of all who are unfairly dealt with, or engaged in an unequal struggle, wrote an excellent article in that paper last August, insisting on the reasonable proposition that a ship's surgeon should have power to exercise effective control over all matters relating to the health of passengers and crew; and pointing out that the proper way to ensure this would be to make the surgeon a representative of the Board of Trade, commissioned to report directly to that body on all matters within his jurisdiction, and responsible to them alone for the performance of his duties. *Rem acū tetigisti*, we may say of the editor of *Truth*.

Dr. Leet is also backed up the leading medical journals, and both by energy and by argument, he is

gradually bringing public opinion to bear on the subject, so that there is reason for hoping that before long the ship's surgeon's position will be properly strengthened, and that the health and welfare of passengers, emigrants, and crew will be suitably safeguarded.

Dr. Leet is fighting against a wealthy and united class, and not only deserves, but needs all the assistance that the profession and right-thinking persons can give him.



RULES WORTH OBSERVING IN COLD WEATHER.

Never lean with your back upon anything that is cold.

Never begin a journey until you have had breakfast.

Never take warm drinks and then immediately go out into the cold.

Keep the back, especially between the shoulder blades, well covered; also the chest well protected. In sleeping in a cold room establish the habit of breathing through the nose, and never with the mouth open.

Never go to bed with cold or damp feet.

Never omit regular bathing, for unless the skin is in active condition the cold will close the pores, and favour congestion and other diseases.

After exercise of any kind, never ride in an open carriage or close to the open window of a railway carriage.

When hoarse, speak as little as possible until the hoarseness is recovered from; else the voice may be permanently lost, or inflammation of the throat be produced.

When going from a warm atmosphere into a cooler one, keep the mouth closed, so that the air may be warmed in its passage through the nose before it reaches the lungs.

Never stand still in cold weather, especially after having taken a slight degree of exercise, and always avoid standing on ice or snow, or where you are exposed to cold wind.



"*When Doctors Differ Who Shall Decide?*" is an oft-quoted proverb. Not long since, two medical men happening to show some divergence of opinion at a dinner party, a barrister who was present chimed in with this quotation, upon which one of the disputants observed, "It is a way we have got into lately; we have both been witnesses in cases at the Law Courts lately, and I suppose we have caught the habit from counsel."

RECENT HYGIENIC PATENTS.

THE following list of recent Applications for Patents is compiled specially for HYGIENE by W. Mellersh-Jackson, Patent Agent, 75 Chancery Lane, London, W.C., from whom further information may be obtained.

No. 21,556. "An improved sheet for ventilation and other purposes." T. R. WESTON.—November 13th, 1893.

No. 21,640. "Improved composition for producing vapour for disinfecting and therapeutic purposes." H. SPENCER.—November 13th, 1893.

No. 21,820. "Cremating and destroying obnoxious gases from dust destructors, &c." T. W. BAKER.—November 15th, 1893.

No. 21,855. "Improvements in the methods of manufacturing articles of chocolate." E. EDWARDS.—November 15th, 1893.

No. 21,859. "A cushion for medicating air." J. J. HARTNETT.—November 15th, 1893.

No. 21,867. "Improvements in drain traps." E. A. GREEN.—November 16th, 1893.

No. 21,872. "Improved system of hanging, sliding, sash windows, to open inwards for safely cleaning and other purposes." F. MACLEAN AND R. KAY.—November 16th, 1893.

No. 21,878. "Sewage outfall grid." T. HOLLOWAY.—November 16th, 1893.

No. 21,894. "The Universal gully." R. W. HAMMOND AND W. E. POWNALL.—November 16th, 1893.

No. 21,902. "The simplex chloride of ammonia pocket inhaler." H. SMITH.—November 16th, 1893.

No. 21,927. "Production of a medical preparation from the tubercle bacillus and the process employed therefore." E. KLEBS.—November 16th, 1893.

No. 21,961. "Improvements in refrigerators for butter and other articles of food." C. F. V. MATTHISSEN.—November 16th, 1893.

No. 22,010. "A new or improved respirator." W. B. HILL.—November 17th, 1893.

No. 22,017. "Automatic beverage delivering machine." F. W. M. BATEMAN.—November 17th, 1893.

No. 22,250. "An improved sewer cleaning brush." S. JOHNSTON.—November 21st, 1893.

No. 22,265. "An improved earthenware drain-pipe." W. E. MONRO.—November 21st, 1893.

No. 22,279. "Improvements in disinfecting and apparatus for that purpose." E. HERMIT, C. F. COOPER AND E. J. PATERSON.—November 21st, 1893.

No. 22,357. "Improvements in medical cars or carriages." J. CAIRNS.—November 22nd, 1893.

No. 22,370. "Improved portable and pocket disinfectant." E. M. WOODTHORPE, A. H. BALDWIN, AND C. GRAVES.—November 22nd, 1893.

No. 22,418. "Improved means for deodorising and disinfecting water closets, urinals, and the like." D. BUCHAN.—November 22nd, 1893.

No. 22,460. "Improvements in apparatus for the manufacture of butter." W. VINCENT.—November 23rd, 1893.

No. 22,545. "A new method of compounding medicine." E. J. LLOYD AND H. RANKIN.—November 24th, 1893.

No. 22,560. "Improvements in plugs to be used in testing drains." C. CAMPBELL.—November 24th, 1893.

No. 22,597. "Improved method of and apparatus for cleaning, cementing and repairing drain and other pipes." R. G. RESTALL, November 25th, 1893.

No. 22,652. "A combination toilet rack." F. KNAAPP.—November 25th, 1893.

No. 22,668. "Improvements in street gulleys and the like." J. TOFT.—November 25th, 1893.

No. 22,673. "Improvements in extract of coffee or tea, and apparatus for the purpose." J. F. DUKE AND H. MAXWELL.—November 25th, 1893.

NEWS AND NOTES.

Dulcamara in the Press.—Under this heading, the last number of the *Modern Review*, a monthly periodical which has attained a leading position, deals with quack advertisements, and makes special use of, and reference to, the articles on "Patent alias Quack Medicines," appearing in our columns. The *Modern Review* speaks of our journal as follows:—"HYGIENE, an excellent weekly publication, which has done the greatest service to the public by exposing quacks." Thanks, *M. R.*, for your flattering notice and friendly encouragement.

Blundering Sanitation.—We are informed that, some little time since, a case of scarlet fever having occurred in a cottage in a village near Epsom, directions were given for the paper to be stripped off the walls of the room which the fever-stricken patient had occupied, and for other necessary measures to be taken. The wall paper was very carefully removed, and then deposited in a back garden. Presently, a high wind scattered the pieces about the main street, much to the delight of the school children, who used the gaily coloured strips as playthings. Subsequently the matter cropped up in the course of a conversation at a meeting of the rural local authority, with the result that, about a fortnight after the wind had scattered the pieces of wall ornament, men were set to work to hunt throughout the village for the suspicious papers, and finally all the fragments that could be found were committed to the flames. The "wise men of Gotham" would not have made such a ridiculous mistake as to stop short, in the first instance, at removing the paper.

Yarmouth.—We understand that a Local Government Board inquiry will shortly be held, with reference to the Town Council's proposals to borrow money for sewage works, paving, and salt water supply.

A Simple but Good Test of Milk.—Place a polished knitting-needle upright in a glass or jug containing milk; then withdraw it. If the milk is pure a drop of the fluid will adhere to the needle, but if it is adulterated with water no drop will hang to it.

* * *

Opium.—In India there are two great Government opium factories. The largest of these is at Patna. Here the manufacture is carried on during the summer, and in the winter the opium is packed and distributed. The stock in the immense warehouses at the close of the manufacture reaches a total value of £4,000,000! The other great factory is at Ghazipur, near Benares. The production reaches 60,000 chests a year, half of it being consumed in India, and the profit to the State is from five to six millions sterling.

* * *

Filtration on a Large Scale.—A limit to the rapidity of filtration has been generally adopted by the London water companies. It is represented by the passage of about 540 gallons of water through each square yard of the upper surface area of the filter in twenty-four hours, or two and a half gallons through each square foot of surface per hour. Water passed through well-constructed filter beds at a rate not exceeding this becomes, under ordinary circumstances, bright and clear.

ANSWERS TO CORRESPONDENTS.

Sub asks for information as to the most suitable place south of London, and within half an hour by rail, for a family very much subject to dyspeptic ailments, and mentions Streatham. Of course, much depends upon the cause and nature of the dyspeptic condition; but the upper part of Streatham would meet *Sub's* requirements. Other localities which we might mention are Wimbledon (the higher ground, near to the Common) and New Malden, where last year the death-rate was under 9 per 1000 inhabitants.

Mrs. M. will receive a private answer by letter as soon as we have obtained the desired particulars.

A Sanitary Inspector will find the subject has been dealt with on reference to *HYGIENE* of June 23rd.

T. W. R.—We should not recommend the method you speak of.

D. E. D. says that the World's Dispensary Medical Association, 3 New Oxford Street, London, has offered to send him all medicines required to cure him of pimples, which break out often on his face, at the charge of £1 is. per month, and adds:—"Do you think I should be 'had,' or is it genuine?" Second thoughts may have convinced our correspondent before this answer appears in print,

that his obvious doubts are well founded. Although the printed form directs all letters of inquiry or of consultation to be addressed to the high-sounding Medical Association, he may rest assured that no qualified medical man is connected with this establishment, which gives, by the way, the same address as that from which Pierce's "Golden Medical Discovery" and "Purgative Pellets" are advertised. We have not yet noticed these, but intend to do so in the coming new series of articles on Patent *alias* Quack Medicines.

Mater.—Shun quack remedies, and let your child have plenty of good food, fresh air, and wholesome exercise. If the weakness should, however, continue, call in a neighbouring medical practitioner.

S. J.—The new (8th) volume of *HYGIENE* will begin with the January 6th number.

M. O. H.—If you like to send the report to us, we shall be pleased to look through the parts mentioned.

Scriptor should get an estimate for printing and publishing his pamphlet from Beaumont & Co., Limited, Savoy House, 115 Strand, W.C. They would get it out as expeditiously and economically as any firm in London.

M. D. (Berlin.)—We are much interested by the information contained in our correspondent's letter, and shall be glad of further particulars later on.

E. N.—The excessive infantile mortality in some of the great manufacturing towns in the North of England is, in great measure, due to the circumstance that such a large proportion of very young children do not have proper maternal attention, as the mothers are at work all day in the mills.

An Invalid should write to the Dietetic and General Agency, 22 Henrietta Street, Covent Garden, through which she can obtain any dietetic speciality.

EDITORIAL AND PUBLISHING NOTICES.

EDITORIAL.—The Editor begs to express his thanks to numerous correspondents, and to state that he will be pleased to receive any articles or correspondence coming within the scope of *HYGIENE*, books or pamphlets for review, reports of medical officers of health, items of general or local sanitary interest, newspapers (marked at the part to which it is desired to draw attention), &c.

ADVERTISERS are requested to bear in mind the greatly increased circulation of *HYGIENE*, with its weekly issue and reduced price. In addition to the large regular circulation, many thousands of copies are distributed annually to sanitary officials, medical men, private addresses, public libraries, clubs, hotels, &c.

HYGIENE,

A SANITARY WEEKLY PAPER.

VOL. VII.]

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THE INSPECTION OF MEAT, WITH REGARD TO THE PREVENTION OF DISEASE.

By FRANCIS VACHER, F.R.C.S., lately Medical Officer of Health, Birkenhead.

THAT there is no line of separation marking off the diseases of animals from those of man is a truth modern research has forced upon the attention of the medical profession. One can only wonder that such an obvious truth was not clearly recognised long since. The mistake has been that the conditions of health and causes of disease in man have been studied by physicians and medical officers of health, and the conditions of health and the causes of disease in the lower animals have been studied by veterinarians. Let it be recognised that both studies are closely related branches of the same subject, and will be most profitably pursued together, and very great advances in our present knowledge may be confidently looked for. Our large towns are schools in which the laws of the health of the people are learned, and our large hospitals are schools of human pathology, but comparative pathology, though taught in the veterinary colleges, is not studied as it might be by medical men and veterinarians at every public abattoir. Unfortunately in this country public abattoirs are not as generally provided as they should be, still in those we have abundance of pathological material is from time to time presented and wasted. If the question be asked—Why is this?—the only answer is that we have, as a nation, no properly organised system of meat inspection. In a few isolated districts some special attention is given to the matter, but there is no general systematic inspection of meat with

regard to the prevention of disease, and no facilities are offered for the study of the disease of animals used for the food of man. Shall I say this is due to divided authority, insufficient powers, and neglect, or inadequate use of powers? Doubtless it is, but the main defect is that the nation has never sufficiently realised the importance of the due inspection of meat used for human food.

As I have again and again pointed out, inspection is often the merest farce; split carcasses, dressed and cold, being viewed and passed without the offal or any part of it being produced. Whether a carcass is fit for food is commonly decided by a nuisance inspector or market constable. When the inspection is done by a medical man there is no guarantee that it will be more thorough. Witness question 3479 in the Report of the Glasgow meat case heard in May, 1890 (the Glasgow Local Authority *v.* Hugh Couper and Charles Moore). A health officer and inspector under the Contagious Diseases (Animals) Act, was asked, "How many hours in one day do you take to inspect 5400 head of cattle?" "About three or four hours," is the answer. Private slaughterhouses are allowed almost everywhere, being often the only slaughterhouses in large urban districts, and in these efficient inspection is impossible. Inspection, however perfunctory, it may be said, is better than none. Frequently there is none, for there is little or no check on diseased or dead oxen, or sheep, or swine being dressed in rural districts and brought into towns, uninspected. Finally, when, notwithstanding the difficulties in the way of inspection, or the carelessness or incompetence of the inspectors, a carcass infected with tuberculosis or anthrax is seized, it has to be taken before a magistrate, and if he refuses to

condemn it, it finds its way back into the meat market, and it is open to the owner to bring an action for damages against the person who seized the meat, or the Authority he serves. I have had personal experiences that such actions may be brought successfully.

I am aware that owing to provisions in local Acts of Parliament and in special regulations made by local authorities the meat supplies of some districts is subjected to careful inspection, leaving little to be desired. However, this is quite the exception, and the problem presented for solution is how to make it the rule. I have, after much reflection, formed definite opinions as to what is needed. The reforms I propose are far-reaching and will not be easily affected; still, nothing less will accomplish the object sought.

They are as follows:—

No. I. *The General Provision of Public Abattoirs.*—This is the initial step. If private slaughter-houses are to be abolished, better accommodation for the slaughtering of animals used for food must be first provided. Such an abattoir as that erected in my own town in 1887 will, as experience has shown, fairly meet the requirements of a large urban district, and I venture to think that its situation and arrangement may serve as a guide to those who contemplate the erection of such a building. It is situated on a triangular site at the outskirts of Birkenhead, bounded on the N.W. by the main road by which cattle arrive from the country, on the E. by the river, and on the S. by a considerable extent of unoccupied land. The building is of plain style, in brick and terra cotta, and thorough ventilation is secured. At the front are two entrances—one opening to the south avenue, and one to the main avenue. From the south avenue access is had to three cattle lairages, and two sheep and calf lairages; also a house for suspected meat, a small extra lairage, and office. Passing through any of the lairages one enters a slaughter-house, to which all lead. Beyond this, across a passage, is the cooling-house, or dead meat market, the opposite side of which opens on the main avenue. Many hanging runners extend from the slaughter-house to the cooling-house, so that carcasses as soon as dressed can be at once passed on into the cooling-house. North of the main avenue are the superintendent's office, a store-room, lavatory, weighing office, and boiler-house, together with the accommodation provided for the pork-butchers, *i.e.*, a cooling-house, a dressing-house, two killing-pans, an extra boiler-house, and an extensive range of pig lairs. The main avenue communicates with the south avenue by means of the east avenue, and between the east avenue and the river are a dissecting-room, tool-house, gut-dress-

ing-room, drying-room, store-room, latrines, etc. The lairages afford accommodation at the same time for 156 head of cattle, 126 calves, 620 sheep or lambs, and the twelve lairs for swine would afford ample space for 156 full-grown animals.

As under Clause 169 of the Public Health Act, 1875, and allied clauses in similar Acts, "any urban authorities may, if they see fit, provide slaughter-houses," all urban districts are fully empowered. If the powers had been compulsory instead of permissive, all urban districts would long since have had public slaughter-houses. The main difficulty is as regards rural districts. Some persons, indeed, think that public slaughter-houses, though useful and necessary in towns, are not required in rural districts. This opinion is probably due to an exaggerated idea of what is meant by a public slaughter-house. It may be but a small place, where the requirements of the district are small. The requisites are accommodation for lairing, killing, dressing, and cooling, and these may be provided in a single building, having three compartments. All that is essential is that it be separated from any other building, that the floor and walls (to the height of six feet) be impermeable, that it be well ventilated, drained, and supplied with pure water, and that it be well lighted, allowing killing and dressing always to be done with closed doors, and that the direct rays of the sun be excluded. A slaughter-house fulfilling these conditions, and suitable for a district of 10,000 inhabitants might be erected at a cost not exceeding 6*d.* or 8*d.* per head.

What then is wanted? Simply compulsory powers for all sanitary authorities, enabling and requiring them to provide and maintain public abattoirs.

No. II. *The Closing of Private Slaughter-Houses.*—From all parts of the kingdom accounts have been given of private slaughter-houses originally ill-drained or undrained, badly lighted and ill-ventilated, and suffered to get ruinously out of repair, and foul beyond description. The situation is often close to squalid courts and allies, in the most crowded localities. The resulting *effluvia* are a constant nuisance to the neighbours, night is made hideous by the bellowing of the beasts and the swearing of men, the frightened cattle arriving are a daily source of danger, and little children grow up familiar with scenes of bloodshed. It has been proved beyond doubt that private slaughter-houses do not afford butchers ordinary facilities for cleanly slaughtering, while the efficient inspection of them or the meat prepared in them is impracticable. There are many advantages which would result from the total suppression of private slaughter-houses and replacing them with properly constructed public ones (the removal of

many standing nuisances, the checking of cruelty, etc.), but the main advantage is that by this means only is efficient inspection of meat possible, and some security given that animals intended for food of man will be killed and dressed under wholesome conditions.

Although nominally licenses are granted to private slaughter-houses for one year only, many butchers believe that when once a slaughter-house has obtained a licence it is practically licensed for all time, and no matter how ruinous or filthy it may become, the Local Authority must renew the licence year by year. Though this is certainly not true, legal decisions have been given which show that a Local Authority cannot discontinue the licence of a licensed slaughter-house without giving good grounds for so doing. However, that there can be any property in a licence except for the period covered by the licence will scarcely be maintained. If properly-constructed public abattoirs be provided, the tenants of a large proportion of the private slaughter-houses would not ask for a renewal of their licences; and if the terms for the use of the public abattoir were very moderate (as they should be), all butchers would soon see it was to their interest to discontinue the use of confined premises in the rear of their shops, and would let their customers know that their meat was dressed and prepared under full inspection.

III. The Licensing and Registering of all Butchers and their Premises.—By the closing of private slaughter-houses, the Local Authority would lose what little control they have over the retail trade, unless some provision be made for the licensing of butchers and their premises. It is generally admitted that the registration of dairies, cowsheds, and milk shops, and the regulations made under the Contagious Diseases (Animals) Acts, 1878, and 1886, and the Dairies, Cowsheds, and Milk Shops Orders have done much to protect milk from contamination. I propose that butchers should be dealt with in a similar manner, *i.e.*, that they be required to register and obtain licenses for their trade premises, and be thus brought under the control of the Sanitary Authority. How this is brought about, provided it be done effectually, is not material. The Local Government Board is the fit central Authority to be entrusted with the regulation of a trade for securing the cleanliness and the prevention of disease. A brief clause in a Government Act would give the Board the necessary power, and then the Board could draw up and issue bye-laws for the licensing of butchers and their premises, &c. They might be to the following effect:—

1. Every Local Sanitary Authority shall keep a register of persons carrying on in the district of the

Authority of the trade of a butcher, and of the premises occupied by them for the purposes of their trade; and shall, from time to time, revise and correct the register, and the Authority shall, from time to time, give public notice of a license and registration being required, and the mode of obtaining a license and of registering. It shall not be lawful for any person to carry on in the district of any Local Sanitary Authority the trade of a butcher unless he be licensed and registered as such therein.

2. It shall not be lawful for any person following the trade of a butcher to occupy as a butcher's shop, or for the purposes of his trade, any premises, whether so occupied at the date of the issue of these bye-laws or not, unless and until he first make provision, to the reasonable satisfaction of the Local Sanitary Authority, for the ventilation, drainage, cleansing, and water supply of the same, and for the protection of meat therein against infection and contamination, and until the said premises be licensed and registered by the Local Sanitary Authority.

3. Every person following the trade of a butcher shall keep a daily journal, to be produced at all reasonable times to any officer of the Local Sanitary Authority, in which shall be entered every purchase of meat by the butcher, and the weight thereof, the vendor's name, and record of all sales.

4. Every Local Authority shall make regulations for prescribing and regulating the cleansing of butchers' shops within the Authority's district, and the fittings, vessels, and implements belonging to the same, and the Authority shall take steps to insure that the regulations are enforced.

Any person doing anything in contravention of the above must be liable to a penalty, and the maximum penalty would have to be specified.

(To be continued.)

THE SMOKE AND FOG OF LARGE TOWNS, AND THEIR PREVENTION.

By A. E. FLETCHER, F.I.C., F.C.S., H. M. Chief
Inspector under the Alkali Act.

(Concluded from page 422.)

MANY kinds of mechanical stokers have been devised, and some have met with great success. Twenty years ago it could not be said that their success was complete. The machinery employed was complicated, so that the first cost, and still more the cost of maintenance, was too great, and many steam-users after giving them fair trial,

were forced to return to the old system of hand firing. Now, however, a more favourable report may be made, and many who have had continued experience find them a source of economy, as well as a means of preventing the nuisance of smoke. The economy is effected, not only by the more complete combustion of the fuel, and the avoidance of an undue supply of air, but is due largely to the fact that a mechanical stoker will keep steam with a cheaper fuel than is necessary when the stoking is done by hand.

It is not desirable to name the makers of the best automatic stokers, but it should be pointed out that the machines are of two kinds. In some the coal, broken small, is continually thrown on to the fire in small quantities by a kind of spring shovel, which scatters it over the whole surface of the fire. These may be called "sprinklers." The others push in the coal continually, a small quantity every few seconds at the mouth of the furnace; and this, by a movement of the fire bars, is gradually worked on towards the bridge, where the residue of ash or clinker is dropped over. An objection is made to the sprinklers in that they do not wholly prevent the formation of smoke, since the gas from those portions of coal which are thrown near the bridge is carried away into the flues before there is time for its combustion. Secondly, it is found that some of the fine coal thus thrown into the hot air of the furnace is coked, but not burnt, and thus rendered light is carried away by the draught, to be discharged from the chimney-top, to the injury of the neighbourhood.

On these two grounds preference is given by many to the other class of stokers which are called "cokers," in that the coal first pushed in on the deadplate of the furnace is there coked, and then worked forward by the movement of the fire bars till the combustion is complete.

It must not be said, however, that hand firing cannot be so conducted as to avoid the production of smoke. The style of hand firing I lately described is of the crude common kind, which, till of recent years, was all but universally practised. Many improvements may be adopted. Too much coal should not be thrown on the fire at one time. It should be placed on the deadplate in front of the fire, and after lying there awhile to coke, should be pushed forward on to the bars. Then arrangements should be made for the admission of heated air at the door, and at the bridge especially, immediately after throwing on fuel, or after pushing forward the charge lately placed on the deadplate. The air thus admitted at the bridge may be heated in various

ways. Some adopt a hollow fire bar, which, as a tube open at both ends, conveys a current of air in the direction of the draught; thus a double object is attained—the bar is kept cool and the air is warmed. Others bring the air from the ash pit up through the brickwork of the bridge, and discharge the thus heated current among the gases to be burnt.

It is, however, not necessary here to go further into the details, it is sufficient to have pointed out the conditions necessary for the complete combustion of coal, and to add that, by the adoption of methods now in common use, both mechanical or otherwise, these conditions may be fulfilled, and all discharge of unburnt gas or carbon prevented.

It has been, indeed, asserted, by some who appear interested in discrediting all attempts at smoke-prevention, that although a chimney may discharged no black smoke, yet a noxious gas, worse than that, may be flowing from it unseen. The gas referred to is carbon monoxide. This is a poisonous gas, and it may arise from a clear fire. The gas may any day be seen burning with blue smokeless flame above a hot coke fire or a fire of clean cinders. When a stove charged with coke arrives at a sufficient heat, and the supply of air is insufficient for the formation of carbon dioxide or carbonic acid, then some carbon monoxide is formed (also called carbonic oxide). This, however, is not the condition of a furnace burning bituminous coal. Here carbonaceous gases are given off, which are much less inflammable than the carbon monoxide supposed to accompany them. If, then, the supply of air has been of such a nature and so sufficient as to burn the whole of these hydrocarbons, as testified by the smokeless chimney, still more has it been sufficient to burn all the carbon monoxide and convert it into the harmless dioxide. A few years ago there was a considerable outcry, and a statement was made, with some show of authority, that the advocates of smoke-prevention were doing more harm than good, since they asserted every smokeless chimney would pour out torrents of this poisonous gas. Knowing that facts must convince where arguments fail, I made examination of the gases in factory chimneys in various parts of the country where different classes of coal were burnt, and under every variety of condition, and I found in most cases, where black smoke was abundant, more or less carbon monoxide, but in no case where there was a clean chimney was any of this gas present. The number of smoke tests made was fifty-two. The details are given at p. 28 of my report under the Alkali Act for the year 1888.

I have now dwelt on the causes of the black smoke from factory chimneys, and pointed out their remedy; the question, therefore, must be asked, "Why is the nuisance still continued?" Some would answer, "We need further legislation." This may be partly true—a few little holes in the legislative fence might perhaps be stopped, but the law, as it stands, would do much if firmly applied.

In Section 91, Clause 7, of the Public Health Act, 1875, it is enacted that "Any fireplace or furnace which does not, as far as practicable, consume the smoke arising from the combustible used therein, which is used . . . in any manufacturing or trade process whatsoever; and any chimney (not being that of a private dwelling) sending forth black smoke in such quantity as to be a nuisance, shall be deemed to be a nuisance liable to be dealt with summarily."

It will, I think, be acknowledged that if these clauses were firmly administered the smoke nuisance, in so far as it is caused by factory chimneys, might be suppressed. It is, however, the administration that has been at fault; that is in the hands of the local authorities, magistrates, &c., many of whom are either smoke-producers themselves or friends of those who are. Hitherto they have dwelt too fondly on the clause "as far as practicable." It has been said to the offender, "You must be more careful with your smoke; prevent all you can, but we do not think it is practicable for you to avoid it altogether." Now, however, that scores of smokeless chimneys can be cited as proofs that the *entire* prevention of smoke is possible, this leniency should cease. It is, however, perhaps vain to hope that the local authorities will ever administer the Act firmly against themselves, and we must wait for the suppression of the smoke nuisance until the administration of the law is in independent hands.

In London this change *has* been made. By the Smoke Acts of Lord Palmerston, 1853 and 1856 [16 and 17 Vict. c. 128, and 19 and 20 Vict. c. 107], the administration is placed in the hands of the Metropolitan police, who are subject to the control of the Home Office. The penalties are severe, and for each fresh offence are double that imposed before.

The benefit we enjoy in London from the operation of these Acts is very great. Those who remember the smoky chimneys at the East End, and the reek from the steamboats which plied on the Thames forty years ago, and contrast the then condition of London vegetation with the present aspect of the Temple Gardens and of the foliage in our parks and squares, will

be conscious of the improvement that has been made; and this without undue pressure on or harassing of the manufacturers.

Under the Alkali Act, whereby the principal chemical works of the country are kept in check as regards the emission of noxious gases, the administration is carried on by a chief inspector and staff of inspectors appointed by the Local Government Board, and responsible only to them. When such an organization is appointed to take cognisance of factory smoke throughout the kingdom a great change will be apparent, and those who have been the most averse from action will be led to acknowledge that a benefit has been forced upon them.

Up to this point we have considered only the smoke liable to issue from the chimneys of factories where large quantities of coal are burnt, and in furnaces where a high temperature is maintained. There remains now the house smoke—that huge cloud springing from a million tiny sources, yet forming so large an aggregate. It is this from which we suffer in London, and is perhaps the chief factor of discomfort even in the more manufacturing centres of the North.

We are a fire-loving nation, and, having burnt up our forests, have taken to coals, which we find to be an excellent substitute. Burnt as they commonly are in the open grate, a carbonaceous smoke is necessarily produced at certain stages of the fire, and the prospect of preventing this by the general use of close stoves or any complicated arrangement is very remote. If the price of coal should be permanently much increased, no doubt close stoves would be more commonly used on the ground of economy. At present two steps may be taken which would tend to the diminution of coal smoke, not only the visible carbonaceous portion, but the acid part also, by reducing largely the amount of coal consumed.

The first—an old one—namely, that the gas companies should produce a cheap gas to be supplied in separate mains for heating purposes only. The late Dr. William Siemens proposed many years ago that this should be done, and that the gas-makers should separate the gas as generated into two portions: that which is rich in illuminating power passing into one holder, while the gas coming off later in the operation would be led off in another direction to supply that which would serve for heating and cooking purposes.

Part of this gas would be carbon monoxide if steam were introduced into the retorts, but, being mixed with the residue of hydrocarbons from the coal, would have sufficient smell to give warning of leakage in the houses. Otherwise there would be a great objection to its use, as

carbon oxide is poisonous, yet having no marked smell by which its presence can be detected. In the manufacture of gas, most of the sulphur of the coal is retained in the gasworks, so that the substitution of gas as a fuel for coal would rid the air of the black smoke and the sulphurous acids also.

There is another important reform in the manner of heating houses to which I should direct your attention. The present system of open fires causes a current of air to flow continually up the chimney. A considerable volume of air is withdrawn from the room to be heated and carried up by the fire. This air of the room must, of course, be replaced, and it usually comes in by the open door, or, when that is closed, by the chinks round doors and windows, causing a draught of cold air to those who may be near them. When at night all outer doors and windows are closed as tightly as possible, and many fires are burning, the air necessary to supply these chimneys finds readiest access by means of the disused chimneys, many of them probably in the bedrooms. Down these sooty channels a stream of air passes from the cold and possibly foggy night into the very rooms presently to be used for sleeping. My proposal is to cure all this by making a special inlet for the air needed by the whole house. Let this come from a part as far as possible removed from drains and ash pit, and before entering let it spread over and filter through a large sheet of loose woollen material, or through a layer of cotton wool held in position between two sheets of gauze. The air thus filtered should pass through the warm passages of a hot-air stove, and from that flow into the lower part of the house. If the stove is low down in the basement the hot air ascends through the prepared channels, and, filling up the house, will tend rather to push its way out of chinks and crannies than that they, as before, should be sources of cold in-draught. When the door of a room is open the air entering it is warm, say at a temperature of 55° or 60° . In such case a very small fire on the hearth is sufficient to add the needed extra warmth and to maintain a cheerful appearance. It is, indeed, possible so completely to warm a house that the fires are not needed. A house in which I lately resided was so fitted, and we burnt no coals at all. Gas fires added to the temperature of those rooms where extra warmth was needed in the coldest weather, but in mild weather fires were not needed, and consequently their absence was not noticed. People do not ask for a fire in a sitting-room on a hot day of August, neither do they in a house brought artificially to summer temperature in December. I do not, however, advocate a

crusade against an Englishman's open fire: I propose to supply that which will remove the need of it. Let the fires go on; they maintain ventilation, and the air needed to supply the open chimney will come through the arranged channel, and be clean and warm, instead of coming with discomfort and dirt through every chink and cranny of the building. In the house I speak of the cooking was done by gas, and the water for baths, washing, &c., warmed by it. There was no coal in the house: The stove was supplied with coke or anthracite coal, so that I had the satisfaction of knowing that I contributed nothing to the smoke of London. No chimney-sweep entered the house, and much of the soot contributed to the air by my neighbours I kept out by the filter I have described. That speedily became quite black on the outer side and needed brushing. At such times there was a satisfaction in knowing that but for its action all the soot and dust so collected would have been drawn into the house and deposited on the walls and furniture. I may add that the cost of coke in the stove for heating a house in Gordon Square* was only £3 every winter.

BRITISH HEALTH RESORTS.†

No. XI. (*New Series*).—LEAMINGTON.

By FRANCIS W. SMITH, M.D.

ENGLISH Spas generally are rising in public favour. Many physicians and specialists, instead of exposing their patients to the annoyance and fatigue of foreign travel, are very prudently recommending them to use our Mineral Springs, and it cannot be too often repeated that there is now no need for invalids to run the risks and undergo the inconveniences and discomforts of a journey to the Continent in order to drink Mineral Waters. We have as good Saline Springs in Leamington as there are anywhere. In our "temple of health," those

* As bearing upon the question of cost, we may mention that the houses in Gordon Square, London, are of good size.

† The object of this series is to direct attention to the merits of different British Health Resorts, too often overlooked and neglected by persons who are put to much expense, trouble, and loss of time, in visiting Continental Spas, instead of availing themselves of the facilities open to them in their own country. The following places have already been described:—No. 1, Swanage (with illustration), *HYGIENE*, May 13; No. 2, Lowestoft (illustrated), June 16; No. 3, Clacton-on-Sea and Walton-on-the-Naze, July 7; No. 4, Yarmouth (with illustration), August 4; No. 5, Ilfracombe (illustrated), August 18; No. 6, Cromer (illustrated), August 25; No. 7, Malvern, October 13; No. 8, Cornwall, November 3; No. 9, Hastings and St. Leonard's, November 17th; No. 10, The Undercliff, Isle of Wight, December 1.

who are sick may rest assured of finding relief, and often a cure of many of "the ills that flesh is heir to," and it will be well if patients, who are wearied and worried with the rush to Homburg, Marienbad, and Carlsbad, and the fleecing and flaying experienced at these places, would take this to heart. Like many health resorts which have risen into notoriety, Leamington, in its early days, consisted of a few thatched cottages. It cannot boast of great antiquity, nor, like Royat and Dax and half a dozen other Continental Spas, claim that Julius Cæsar was cured of his rheumatism by frequenting its baths and drinking its waters; but still it would appear that the healing virtues of our Mineral Waters have been known and appreciated in the immediate neighbourhood, and even throughout the Midland Counties, for hundreds of years. As far back as 1586 mention is made of the Saline Springs of Leamington by Camden, and from that time to this they have had "their ups and their downs." Late in last century, greatly through the fostering exertions of Mr. William Abbotts (the great-grandfather of the editor of this journal), the cottages began to give place to large houses; and early in this century, streets, hotels, baths, and mansions followed in quick succession.* Hither, by the magic spell of a great physician, patients flocked by thousands, drank the Natural Mineral Waters, and went away cured. Who is there who has not heard of the great Dr. Jephson? He reigned supreme in Leamington for half a century, and attracted invalids from all parts of the world, I may say—nobles and commoners, gentle and simple, by his extraordinary power. The caprice of fashion, and possibly the facilities afforded for travel by steamboats and railways, have drawn people away to the Continent, but we have every reason to believe there is now a backward wave in our favour. Royal Leamington Spa, including the residential suburbs of Milverton and Lillington, with a joint population approaching 30,000 inhabitants, is situated in the middle of "leafy" Warwickshire. The borough stands at 190 feet above the sea level, and its situation is one of great natural beauty. It is often pronounced the prettiest and and cleanest town in England, and by this appellation it is well known in America. It is built upon a regular plan, with wide and open streets, which in many instances are bordered with chestnut and lime trees, and these impart to the place the aspect of a German Spa. Hygienically

considered, Leamington ranks well, and, for the number of its population, is one of the healthiest towns in England. It is blessed with an abundant supply of pure water, derived from an artesian well, of which it is said by Dr. Tidy, that "as a dietetic water it is in every way of excellent quality, and for wholesomeness leaves nothing to be desired." The borough has a pattern system of drainage. The sewage matter is pumped up to a farm, situated some miles from Leamington, and is considered a model of its kind. The sewers have numerous ventilators, and are frequently flushed, thus ensuring a healthy sanitary condition of the houses. All these matters of detail help to make it a high-class health resort; and when I say that the death rate from all causes for three years averaged only 15.24 per 1000, and that from zymotic diseases during the same period 1.1, I think it will bear favourable comparison with other inland watering-places of equal population. The climate and temperature of Leamington may be described as equable, and not subject to great extremes. The rain-fall, calculated over a period of ten years, averaged 30.1 inches per annum, being considerably less than that of nine other principal inland watering-places. Loudon says:—"Leamington, from being situated at a distance from the coast, and in the midst of a level country, is exposed neither to sudden gusts of wind nor to frequent rains, which a mountainous neighbourhood so constantly attracts. The temperature is more equal than that of the greater part of the inland watering-places in the country. The highly cultivated state of the soil around the town, entirely free from morasses, with the numerous scattered woods and rivulets, contributes to its being one of the most salubrious spots in the inland counties." The climate of England is well known to vary and to be uncertain, no matter in what part people live; but that of Leamington is one which well admits of its being a place of permanent residence. The fact that it has become such speaks for itself. And certainly, so far as taking a course of the saline waters goes, this may be begun and carried on at any time of the year, which cannot be done in the more northern spas of Scotland and England, or in nine-tenths of the Continental ones. Dr. Hermann Weber, who is the greatest living authority on mineral spas, observes:—"We can see no reason why Leamington should not again become a much frequented and useful watering-place, the more so as in many instances it may be resorted to *in early autumn or even winter*, on account of its great mildness of climate compared with Continental spas." Although in the spring, summer, and early autumn, patients look for most benefit, because they can

* Before my great-grandfather commenced the task of forming the new, now called the old, town, Leamington consisted of two or three fairly good houses, with as many score cottages. Now, it has more than 25,000 inhabitants, in addition to several populous villages in its vicinity, which have sprung up in consequence of the development of Leamington.—Editor, HYGIENE.

bathe without the same risks of taking cold, still, there is no doubt but that more come to Leamington in the winter now than formerly, for "courses" of the mineral waters and for the baths. It is seldom they cannot find three or four days in a week genial enough to bathe in, and in this respect it is more like Bath than any other British Watering-place. I have had analyses made of all the mineral waters at present in use at the Royal Spa, but as all are saline and more or less alike, I think my object will be gained by giving that of two, namely, the Pump Room, and the Chalybeate Wells. The following is an analysis of the *Pump Room Well*, by the late Dr. Meymott Tidy, M.B., F.I.C., F.C.S., Professor of Chemistry at the London Hospital, and Analyst for the City of London, made March 20th, 1885:—

	Grains per pint.
Sodium	36·35
Magnesium	2·33
Calcium	7·52
Chlorine	56·15
Sulphuric acid	25·05
Peroxide of iron	·25
Silica	·14
	<hr/> 127·79

Chalybeate, the Public Fount.—Analysis by Professor Brazier, made April 25th, 1885. Chief gas is carbonic, with small quantities of oxygen and nitrogen. Alkalinity expressed as carbonate of calcium is equivalent to 1·12 per pint:—

	Grains per pint.
Sodium	32·67
Magnesium	1·53
Calcium	5·18
Chlorine	45·12
Sulphuric acid	25·74
Carbonate of iron	1·01
Carbonate of calcium	·67
Carbonate of magnesium	·03
Silica	trace.
	<hr/> 111·95

We have, in these waters, mineral salts which we can recommend as powerful remedies in the cure of certain diseases. They are such that we can, with a certain amount of nicety, explain their action. This is most important in mineral waters. They have a fixed strength, and we are thus enabled to prescribe them with accuracy. This cannot, I fear, be said of all mineral waters. It will be observed, on looking at the analysis, that the bases of the salts seem to tend in one direction so far as the diseases go for the relief of which they are indicated. The chief bases—sodium, calcium, and magnesium—

are all alkalisers of the blood, and as such are most useful in gout, rheumatism, gravel, and in a disordered state of digestion arising from excess of acidity. Taken warm at the source, in the early morning, in quantity from ten to twenty ounces, succeeded by a gentle walk, and it may be a cup of tea or breakfast—the effect upon most people is a smart liquid purge, with a feeling of relief of weight from the abdominal cavity. When taken in less quantity (and it may be diluted with drinking water) the action is more of a diuretic kind. The "all-round" action, therefore, of Leamington salines is purgative and diuretic; they are alkalisers and general blood purifiers. In dealing with a few of the diseases in which I find them most beneficial, I will, in as few words as this short paper will allow, run over the principal heads and modes of action in each. Take irritative dyspepsia, where there are fermentations of acids in the stomach, with constipation, eructations of gases from the same organ, palpitation of the heart, and other disturbances—the Leamington salines remove matters from the alimentary canal that are a source of irritation; they prevent an accumulation of such matters as produce disturbances in other organs; and they likewise neutralise the ferments of indigestion, and remove excesses by purgation and diuresis. In congestion of the kidneys they are most valuable. Independently of the "communications" anatomically, by which the kidneys may be relieved by purgation through the portal circulation, there is a much more important physiological relation between the two excretory organs (bowels and kidneys); for if the Leamington salines fail to purge, or purge but in part, they pass on to the kidneys, and act as powerful diuretics, thus opening up a great channel of relief to the liver. In gout which has become chronic, Leamington salines are most beneficial. The excesses of urates and uric acid in the blood are eliminated from the system by a well-directed course of the mineral waters. In this way gout is relieved, and in many cases for the time cured, by the uric acid being alkalised by the sodium, magnesium, and calcium salts, and by the channel of excesses being diverted through the bowels and kidneys. In the same way chronic cases of rheumatism are relieved and cured when ordinary remedies have failed. Sciatica, when mixed up with the gouty or rheumatic diathesis is frequently cured by these mineral waters—so too eczema, psoriasis, and many other skin diseases. In cases also of anæmia I have seen the most marvellous benefit derived by their use and the addition of some preparation of iron to the Chalybeate water. In addition to the aperient effect generally and the hæmoglobin-giving

power of the carbonate of iron, the chlorides (which are largely present) seem to me to stimulate the healthy construction of tissues. Space will not allow me to explain how hæmorrhoids, pelvic congestions, siruma, climacteric disorders, paralysis of some kinds, and degeneration of tissues, all more or less find antidotes in these salines. But such is the case.

The bathing accommodation at the Pump Rooms is excellent. The various kinds of baths are reclining baths; deep immersion baths, with lift crane and chair, for invalids and those who cannot walk; needle baths of newest designs; local and special douche baths; ascending and descending douches, and wave bath; vapour and shower baths; a beautiful Turkish bath; and a large tepid swimming bath 70 feet by 30 feet.

In conclusion, I think it will not be out of place to let intending visitors know that in Leamington will be found every kind of accommodation suited to their wants—spacious and comfortable hotels, lodging-houses, sunny, well-appointed, and clean—to say nothing of noiseless and easy bath-chairs and all manner of invalid appliances. For those who are well enough to enjoy out-of-door exercise, there is all through the winter months the noble sport of fox-hunting, which they may follow to their hearts' content. Leamington has for many years been the rendezvous of "mighty hunters." The country around, too, is fertile, undulating, and wooded, and abounds with objects of the greatest historical interest, for within easy access are Shakspeare's birthplace, home, and final resting-place at Stratford-on-Avon; Warwick Castle, one of England's noblest piles; Kenilworth Castle, a stately ruin associated with royal gatherings, silent gondolas, splendid tournaments, gorgeous banquets, and burly Roundheads; and other places of equal historical interest, such as Edgehill, Stoneleigh, and Coventry with its three church spires.

ON THE IMPORTANCE OF DETECTING AND TREATING DEFECTS OF VISION AND HEARING IN THE CHILDREN OF OUR BOARD SCHOOLS.

By ADOLPH BRONNER, M.D., Surgeon to the Bradford Eye and Ear Hospital.

IN bringing this subject forward, I do not intend to enter into any long statistics or researches of my own, but would like to treat the subject from a purely practical point of view.

We all know how frequently defects of vision and hearing are met with in children. Cohen, of Breslau,

and others have shown that from 16 to 30 per cent. of children have defective vision. Begold, of Munich (*Schuluntersuchungen über das kindliche Gehörorgan*), examined 2000 children, and found the hearing impaired in 26 per cent.

There is another very common and important affection which is intimately connected with the diseases of the ear. I refer to the so-called post-nasal growths, or swelling of the aldenoid tissue at the back of the nose. This prevents the free passage of air through the nose, and the children therefore have to keep the mouth open, and snore at night. The chest cannot develop properly, and becomes narrow and indrawn. The children, in most cases, suffer from bronchitis and diseases of the middle ear. Meyer, of Copenhagen, found that from 2 to 7 per cent. of the children whom he examined had post-nasal growths, and that over 80 per cent. of these could not hear well.

These statistics show how very common defects of vision and hearing are in children. How many of these cases are attended to in time? Very few indeed. Even in adults of the educated classes we not unfrequently meet patients who have not been able to see or hear well for several months, or even years, and who have never before sought medical advice. How much more are these cases neglected in the children of the uneducated classes! In these cases it is the duty of the master at school to interfere and to see that the children are attended to. At present a child who cannot see or hear well, and who therefore does not get on well at school, is simply looked upon as stupid or lazy, and is treated accordingly. Many a brilliant career has been spoiled, and many a child condemned to a life of misery and toil, because some defect of vision or hearing has been neglected. But not only that; we often meet with neglected cases which have become a life-long burden to their relatives or to the community at large. Many cases of neglected discharge from the ear end in inflammation or abscess of the brain, and death.

Neglected cases of post-nasal growths lead to deafness and imperfect development of mind and body. The teachers of our Board schools are, at present, perfectly incompetent to deal with these cases. They have no means of testing the vision or hearing of the children; and, even if they had, they have no orders or authority to interfere.

What I should suggest is, that certain instructions be given to the teachers, so that they may, in a rough manner at least, be able to judge if a child is defective in sight or in hearing. The case should be reported to the

head master, who would then inform the parents of the fact and request them to have the child examined by their family doctor, or, if the people are poor, at some hospital.

All children should be reported whose vision in either eye is less than 6-18, and who cannot read Jaegar II. at from 10 to 15 c.m. Also all children who cannot hear a pocket watch at about 15 or 20 inches; and also those who cannot breathe through the nose, and who consequently keep the mouth open. No child ought to be allowed to attend school if and as long as there is any discharge from the ear or ears.

I am perfectly aware that this proposal is open to many and grave objections, and that it is by no means perfect. Still, I think that it is a step in the right direction, and that it will be of great service to many poor children till the time comes when we shall have proper medical supervision of all schools. I trust and hope that this time may not be very far distant.

TAKING STOCK OF HEALTH RESOURCES.

By DR. C. N. HEWITT (U.S.A.).

EVERY one born healthy into the world brings an endowment of vital capital sufficient to maintain the body for normal and efficient service, say, for eighty years. This capital serves two purposes, or rather a common one, in two ways. Its income is large enough, and probably somewhat more than enough, for all healthful drafts till maturity; there is provision for the expenditures of the periods, fairly well defined, of infancy, childhood, puberty, maturity, and old age, and it seems to be true that economy at early periods saves for those that follow, but such saving is not likely after maturity is reached. It is in accord with other matters that strength comes by effort, power in natural law in one form by its exercise in others, in the use of vital capital, provided that it be in line with the purposes of the body.

In our present view the cost of living—the outlay for mental or physical work—is met by draft on this fund. To think, to decide, to do, we draw against income first, and, if we will, sometimes from the capital. In the normal life of infancy, childhood, youth (and early manhood, perhaps), the principal draft is for growth and development of powers; and the normal expenditure for these purposes is greater at these ages than afterward. At and after maturity the draft is for current expenses—living and repair and for special

work. With health and a normal record to date, this charge should be easily met from income, but it is a fact that many have “lived beyond their means,” and have in various ways drawn on capital which, according to its extent, impairs income and threatens vital bankruptcy, and this may exhibit itself in physical or mental weakness and end in premature death. Both results are in common evidence.

In the way of nature, old age should find one with scarcely diminished vital capital, yielding no more income, but sufficient to take one by easy and enjoyable stages of physical rest and mental occupation to the age of at least eighty years, and to euthanasia, the normal end of a happy life. I think it not difficult by this rude but not unfair analogy of the methods of using pecuniary capital and income, to throw some valuable light on the facts of failure or success in managing vital capital, by all sorts and conditions of men. Why would it not be a judicious and business-like act, then, once a year “to take stock,” figure the profits and losses, of the twelve months’ living and doing that are passed; and learn what one may of the vital prospects ahead of him? It will lead to discoveries worth making, and one of the first will be the fact that the body is endowed with delicate methods of its own, independent of the mind, of discovering and determining the kind, direction, and amount of the response to make to the demand upon its resources, from within or without itself. It will be found a serious mistake to think the mind absolute master of the body, or the last nothing but the creature of the first.

PATENT ALIAS QUACK MEDICINES.

THE unflinching and continuous exposures of Quack Medicines which have appeared in *HYGIENE* during the past three years have produced the following results:—On the one hand, the warm thanks of the medical profession, the hearty congratulations of the medical and high-class press, and the full approval of all opponents of humbug, hypocrisy, and deceit; on the other hand, the bitter enmity and opposition of quacks, who endeavour in various ways, through unscrupulous agents, to secretly cripple the sale and contract wide circulation of the journal which has so fearlessly and ruthlessly denounced their pretensions.

All this has been done in the public interest, and from no idea of private gain. Had this last-named influence had any weight with us, the lavish offers of various patent medicine vendors to pay “any price” for the insertion of

their announcements might have tempted us. Not only have we steadily refused these, but we have had to contend with certain agents who would not send legitimate advertisements to *HYGIENE* because that journal had shown up the sham claims of nostrums for which they did business.

We have done our duty; is it too much to look to the medical profession and the upright-minded portion of the public for their practical support? In order to counteract insidious attempt to injure *HYGIENE*, we ask all haters of humbug to aid our efforts in exposing quackery by becoming subscribers, and by bringing our paper under the notice of their friends; thus encouraging and assisting us in an arduous undertaking, such as has never before been systematically entered upon by any other journal.

The whole of the articles which have appeared up to the present date will shortly be published in book form at the low price of sixpence.* Owing to the amount of matter which the book contains—about 160 pages—there has been a little delay in getting it ready, but our publishers are now booking orders, and will supply purchasers in due course, giving priority to early applicants.

A new series of reports and analyses will be begun, under the well-known heading in *HYGIENE* for January 6th, 1894 (being the first number of our Eighth Volume), and be continued throughout the year.

The Editor of *HYGIENE*.

REVIEWS AND NOTICES OF BOOKS.

Rheumatism: Some Investigations Respecting its Cause, Prevention, and Cure. By Percy Wilde, M.D. Quarto, 72 pages. (London: John Bale & Sons. 1893.)

It would be strange, indeed, if in such a changeable climate as ours—so variable as almost to realise the description which the American gave when he said that England had no climate, only samples—a disorder like rheumatism should be anything but common. In fact, rheumatism is one of the chief affections from which the residents of the British Isles suffer. Recently published statistics show that, out of 15,552 patients admitted at St. Bartholomew's Hospital, London, in six years, 1137 were cases of acute rheumatism, thus amounting to 7·31 per cent. of the entire number. This return, it should

be observed, has reference only to in-patients, and consequently no account is taken of the army of martyrs from rheumatism, in both the acute and chronic form, who came under treatment in the out-patients' department.

Although rheumatism, *per se*, is not a disorder immediately dangerous to life, yet in its remote effects—*i.e.*, in the complications which arise from it—it often leads to fatal results. We refer, of course, to the heart disease frequently following rheumatism. The recorded mortality in the St. Bartholomew's Hospital cases was only 1·32 per cent.; but, then, nearly three in every four—to be exact, 70·86 per cent.—of the 1137 patients developed heart disease. Even the administration of salicylates, largely resorted to of late years—though the drug possesses an undoubted power of controlling the fever and minimising the pain and inflammation in the joints—has led to no appreciable diminution in the percentage of subsequent heart complications. It goes, therefore, without saying that treatment should be directed as much as possible to cutting short the attack, and to dealing vigorously with it in its earlier stages.

Without entering into minute details, rheumatism may be summed up as a disease arising from imperfect oxidation, leading to an excessive accumulation of acid in the various tissues of the body. A corresponding condition prevails in connexion with gout and with some forms of asthma.

The removal of this morbid material is facilitated if the temperature of the body is raised to a moderate degree and in a systematic manner—by simulating, in fact, the fever which is the result of an effort of Nature to get rid of the poison circulating through the medium of the blood. But this, easy it may seem in theory, is not readily carried into practice, especially when it is born in mind that patients suffering from acute rheumatism necessarily have their pain and discomfort much increased by lifting or moving from bed. With a view to obviating this difficulty, Dr. Wilde has invented an apparatus, to which he has given the name of "Vaporarium." It consists of an arched metal covering, composed of two layers, which is placed over the patient. It extends from the shoulders, leaving the head free, to the feet, at which end it is closed (as shown in the accompanying illustration). The space between the two layers is filled with boiling water, the heat from which is radiated from the inside lining surface towards the patient's body. Previous to putting the apparatus in position, a small blanket dipped in hot water and then wrung out is placed upon the patient, thus ensuring a

* Forwarded by post to any address in the United Kingdom on receipt of eight penny stamps by Beaumont & Co., Ltd., Savoy House, 115, Strand, London.

proper degree of moisture, as well as assisting in the promotion and preservation of the requisite warmth. The apparatus is ingeniously contrived, and likely to prove of considerable service in the treatment of rheumatism.

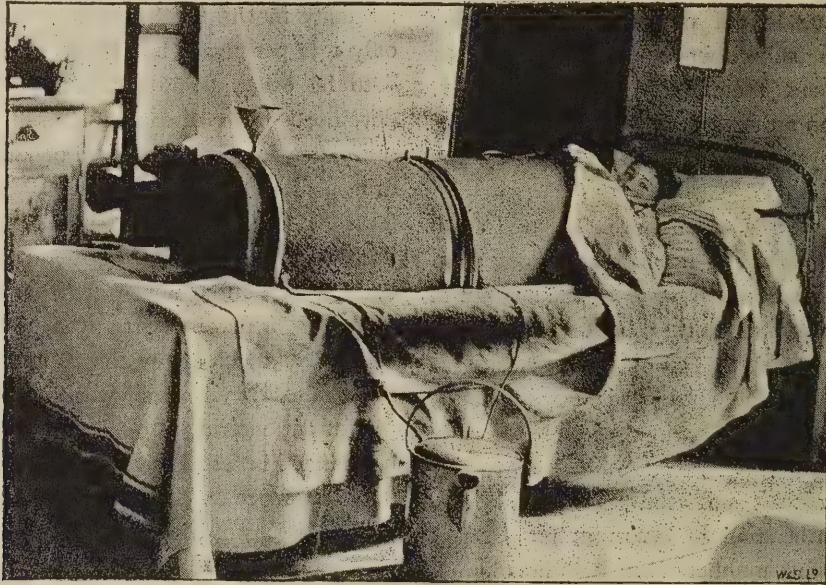
Dr. Wilde says that he has treated 111 cases of acute rheumatism, by which term he implies cases accompanied by continued fever, by raising the temperature of the

CORRESPONDENCE.

CO-OPERATIVE KITCHENS AND CHEAP DINNERS.

To the Editor of HYGIENE.

SIR,—I heartily endorse all that Mrs. Warner Snoad says in your issue of December 1st, on this subject. The subject is at the present moment being treated on somewhat similar lines, for a different purpose, however, by the National Food Supply Association.



patient in the manner indicated, and that he has not had amongst that number a single instance in which heart complications have presented themselves. This is a unique record in the history of this disease.

In the second part of the book Dr. Wilde gives a number of practical notes on the details of treatment, and describes the mode of applying not only the vaporarium, but also the "hot pack," &c. As a general remedy for the asthenoxic* condition in acute rheumatism, the author states that he has found none answer better than a liquid extract made from the *Bursa pastoris*, or common Shepherd's Purse, its effects being usually soon manifested by an increased deposit of urates.

Dr. Wilde's book is well written, and we strongly recommend its perusal to our medical readers.



Abercrombie.—The Local Board have applied to the Local Government Board for permission to raise a loan of 12,000*l.*, to enable them to construct waterworks for the supply of that town.

* Asthenoxia, derived from the Greek *asthenia*, debility, and *oxus*, acid.

This association is a combination of a number of societies which have formed a joint committee to open cooking centres throughout London and the provinces. At these centres soups will be made, and then taken in asbestos-lined cans to the different Board and other schools for the children, and on barrows to the poor neighbourhoods for sale to overworked and underfed mothers and daughters. The prices will be one-halfpenny and a penny, and a good bowl of soup and a piece of bread-and-jam will be provided for this, and—apart from the initial cost of the installation—it is expected that the scheme will cover its own expenses.

Full particulars of its working in Liverpool, with illustrations, will be found in the Christmas number of *The Vegetarian*. Of course the soup will be strictly vegetarian, as it is aimed to make it the best and most nutritious as well as the nicest.

With regard to Mrs. Snoad's recommendation of literature, I should like to add to her list two little books which have just been issued, and which possibly she has not yet seen. They are *The Best 1d. Cookery* and *The Best 6d. Cookery*. They give not only recipes, but advice as to cooking, foods to eat, menus, &c. They can be obtained from the London Vegetarian Society, Memorial Hall, Farringdon Street, E.C. —Yours, &c.

JOSIAH OLDFIELD, M.A., B.C.L. (Oxon),

RECENT HYGIENIC PATENTS.

THE following list of recent Applications for Patents is compiled specially for HYGIENE by Mr. W. Mellersh-Jackson, Patent Agent, 75 Chancery Lane, London, W.C., from whom further information may be obtained.

No. 22,727. "Improved sanitary closet-basin and trap." H. H. COLLETT—November 27, 1893.

No. 22,781. "An improvement in water-closets or water-closet basins." W. T. ALLEN.—November 28th, 1893.

No. 22,783. "Improvements in butter-working machines." T. BRADFORD.—November 28th, 1893.

No. 22,784. "Improvements in apparatus employed in the manufacture of butter." T. BRADFORD.—November 28th, 1893.

No. 22,805. "Improved method of and apparatus for preventing milk or other liquids overflowing when in a state of ebullition." W. P. THOMPSON.—November 28th, 1893.

No. 22,820. "Improvements in disinfecting devices." G. G. CROSBY.—November 28th, 1893.

No. 22,884. "Improvements in dash churns for churning butter." W. B. STAGHALL.—November 29th, 1893.

No. 22,915. "Improvements in the method of and apparatus for toasting or cooking bread or other esculents at or over a fire or other approved heating medium by means of a fork with a reversible end to hold them in position." G. A. SAVILE.—November 29th, 1893.

No. 22,931. "An improved pharmaceutical preparation of errous salts." F. W. WARRICK.—November 29th, 1893.

No. 23,039. "Improvements in apparatus specially suitable for use in estimating the amount of fat in milk and other substances." R. W. WOOSNAM AND THE DAIRY SUPPLY CO., LTD.—November 30th, 1893.

No. 23,055. Improvements in and connected with toilet and other paper." G. CASTLEDEN.—December 1st, 1893.

No. 23,057. "Air and watertight screw and locking joint for drain and ventilating pipes and all kinds of closet and sink connections." E. J. HURLEY AND T. DOUGLAS.—December 1st, 1893.

No. 23,082. "Improvements in or relating to machinery or apparatus for treating, deodorising, drying, and utilising excreta, nightsoil, town refuse, and the like." S. SMITHSON.—December 1st, 1893.

No. 23,155. "Improvements in precipitation tanks and in connection with the precipitation of sewage and polluted water." F. P. CANDY.—December 1st, 1893.

Rivers' Pollution.—The insanitary condition of the Mersey, Irwell, and Ribble, has long been a by-word. The Ribble Watershed Joint Committee have commenced a series of twenty-three actions for river pollution against local authorities in Lancashire. They have been successful in the first one, tried in the County Court of Colne, having obtained an order to compel the Barrowford Local Board to desist from passing sewage into the river at Barrowford.

NEWS AND NOTES.

An Excessive Death-Rate in London was shown by the Registrar-General's Return for last week. The number of births registered was 2466, and of deaths 2556, the former being 84 below, and the latter 870 above, the averages of the corresponding week in the last ten years. The mortality, which had been at the rate of 24·4, 26·5, and 27·1 per 1000 inhabitants in the previous three weeks, had consequently risen to 31 per 1000. The remarkable increase was due chiefly to diseases of the respiratory organs (including 127 deaths from influenza), which were nearly double the usual number. Influenza, as was pointed out in the series of articles on this subject in HYGIENE,* has been gradually invading London as well as hundreds of provincial towns. The deaths registered from influenza in the Metropolis during the four weeks ending on Saturday were, respectively, 22, 36, 74, and, as just stated, 127 last week; the influenza mortality in which was thus within 5 of that of the previous three weeks put together.

* *

The Thirty-three Large Towns of England gave, last week, an average death-rate of 28·6 per 1000 inhabitants. The lowest were Halifax 11·3, Huddersfield 14·4, Gateshead 16·6, Swansea 17·6, and Norwich 18·5, per 1000 per annum. Seven towns exceeded London in their rate of mortality, viz.:—Plymouth with 30·6, Birkenhead 31·1, Leicester 31·4, Preston 32·6, Bristol 32·9, Burnley 34·6, Liverpool 34·9, and Bolton 35·6, per 1000 per annum.

* *

The Greenwich Workhouse Epidemic inquiry has at last come to an end. On Tuesday, the coroner's jury returned a verdict as to the cause of death in the eight fatal cases, viz.:—Infective diarrhoea. To be of any value, an authoritative decision should be arrived at in a less period than two months.

* *

Paraffin Lamp Accidents are becoming more numerous as the winter advances, and many fires, attended by serious personal injuries or even loss of life are the result. At a recent inquest, as to the cause of death in the cases of a cab-driver and his little daughter who were burned to death in Clerkenwell through a fire arising from upsetting a lighted paraffin lamp, the coroner stated that if the lamp had been provided with a metal receiver instead of a glass one, in all probability the fire would not have occurred, and no lives would have been lost.

* *

Canterbury.—Two acres of land have been purchased for the erection of an infectious diseases' hospital.

* Influenza: Its History, Nature, Symptoms, and Treatment; HYGIENE, November 17th, and 24th, and December 1st. All three numbers can still be had at HYGIENE Office, or sent, post free, for four stamps.

Milk Cows.—It is estimated that there are 3,700,000 milch cows in the United Kingdom, and that these provide us with more than 1,600,000,000 gallons of milk yearly. One half of this quantity is converted into butter and cheese, and the remainder used for household purposes, averaging about one quart per family daily. Unfortunately for the poor children there are many families which fall very considerably short of this average. It is an old saying that Providence sends bread for the children, but too often it is left at the wrong house; this seems to be the case, also, as regards milk.

* *

Tight Collars and Defective Vision.—Dr. Forster, Director of the Ophthalmic University of Breslau, states that in no fewer than three hundred cases that have come under his notice, the eyesight was affected by the pressure upon the muscles of the neck, and consequent disturbance of the circulation, caused by wearing collars that were too small.

* *

Snuff.—A subscriber, who has resided many years in South Africa, informs us that the Kaffirs are great snuff-takers; this is especially the case as regards the women. After doing some work they apply themselves steadily to the enjoyment of their favourite luxury, sitting on the ground and drawing the fragrant powder into their nostrils until the tears run copiously down their cheeks, for the snuff which they use is very strong, being composed of tobacco and the ashes of the wild aloe, which they dry, and then burn to a powder for mixing with the tobacco.

ANSWERS TO CORRESPONDENTS.

Hygienist.—The next international Congress of HYGIENE will be held at Budapest in the coming summer.

J. W. (Liverpool).—We regret that our correspondent had reason to complain of the delay in the delivery of his weekly HYGIENE. The reason was that in addition to our usual circulation, many thousands of extra copies were posted, and a few hundreds of the regular subscribers' copies were accidentally put on one side and temporarily overlooked.

A Sanitary Inspector.—1.—The Public Health (Water) Act, 1878. 2.—The authorities possess no compulsory powers in the matter.

Mrs. Broom (Clifton) and several other readers, have written to say that being desirous of obtaining the cheap cookery books mentioned in Mrs. Warner Snoad's article, "A Plea for the Working Man's Wife" (HYGIENE, Dec. 1st,) they have written to the address given by Mrs. Warner Snoad, viz.—75 Princes Street, Manchester, and that their letters have been returned marked, "Insufficiently addressed." We presume that

this must have arisen through Mrs. Warner Snoad not having also given the name of the publisher—the Vegetarian Society, Manchester. In consequence of various offices being in the same building the post-office officials felt compelled to return the letters to their senders.

M. D. (Toronto).—Thanks for your kind remarks concerning our "Patent *alias* Quack Medicines" articles, and especially the one relating to Williams' "Pink Pills for Pale People." None but an imbecile would (as our correspondent says) ever believe that this quack nostrum could have emanated from a graduate of McGill College, Montreal, and of Edinburgh University.

E. S. (Brighton).—The water supply of the health resort which you have selected for your future residence is unsurpassed by that of any town in the Kingdom, not even by the Glasgow supply from Loch Katrine. It is obtained from the practically inexhaustible subterranean natural reservoirs at Goldstone. A complete and interesting account of the Brighton water supply, by Alderman Hallett, J.P., D.L., appeared in HYGIENE for February, 1891.

A Student (Oxford).—The disease known as the Plague, visited the whole civilised world at frequent periods until the seventeenth century, since which time it has disappeared from westernmost Europe; and it is now almost limited to Asia and North Africa. Its last outbreak in England was in 1665. See the graphic description of the Great Plague in London, by Defoe, an eye-witness.

The Jersey Messenger has been sent to us by one of our readers, from whom we should be glad to hear further. It is throughout a gross series of puffs of a quack medicine which has been exposed in HYGIENE, and we shall refer at greater length to the subject in an early issue.

EDITORIAL AND PUBLISHING NOTICES.

EDITORIAL.—The Editor begs to express his thanks to numerous correspondents, and to state that he will be pleased to receive any articles or correspondence coming within the scope of HYGIENE, books or pamphlets for review, reports of medical officers of health, items of general or local sanitary interest, newspapers (marked at the part to which it is desired to draw attention), &c.

ADVERTISERS are requested to bear in mind the greatly increased circulation of HYGIENE, with its weekly issue and reduced price. In addition to the large regular circulation, many thousands of copies are distributed annually to sanitary officials, medical men, private addresses, public libraries, clubs, hotels, &c.

HYGIENE,

A SANITARY WEEKLY PAPER.

VOL. VII.]

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SANITARY LAW.*

By PROF. A. WYNTER BLYTH, M.D., Medical Officer of Health for Marylebone.

IT is an ancient maxim that an Englishman's house is his castle, but in these modern days the axiom rather runs—"An Englishman's house is his castle, provided it be clean and pure." Modern sanitary law, indeed, confers within certain limits the right of perpetual inquisition into the ages, sexes, and numbers of our families, the structure and condition of our homes, the quality of the food we eat, the water we drink, the air we breathe, and the soil on which we live. The law is with and environs us when we come into the light of life, when we depart into the darkness of death; it accompanies us to the school-room, to the workshop; it has to be obeyed alike in the mansions of the well-to-do and in the crowded one room tenement. Imperfect it may be—unequal it may be in its operation, but as it stands it is in principle a model code—the best in the civilised world. But, although confessedly the best, no ideal perfection has been attained, and there are numerous defects in details. To possess a fair knowledge of the sanitary statutes requires time and application, for the statutes are numerous; some are of considerable length. Let me mention a few of the more important: The Public Health Act, 1875; the Public Health (Water) Act, 1878; the Infectious Diseases Notification Act; the Infectious Diseases Prevention Act; the Housing of the Working Classes Acts; the Factory Acts; the Canal-Boats Acts; and the

Rivers Pollution Acts. It would be useful for every person to be acquainted with the provisions of these statutes. It is essential for those who sit upon sanitary boards to know them well. Yet, if you take the members of local authorities throughout the kingdom, how many of them know accurately their powers, limitations, and statutory duties? In my opinion, the first requisite of qualification for a seat on a sanitary board is a knowledge of such matters. There is a proposal before the country at the present time to create new bodies, who will have certain powers with regard to the sanitation of small districts. These new bodies are to be called "parish councils." Either these councils will be obstructive to sanitation or a great assistance, according to the kind of persons elected. If it were possible to arrange that the parish council was to be the first round of the ladder of political ambition, then there would be no fear of the result. The best intellects of the country would be attracted to the parish council. What I mean is this: It might be laid down that in future no one could be a district councillor unless he had served at least a year on the parish council, and no one could be a county councillor unless he had served a year on the district council, and that candidates for Parliament were not eligible unless the aspirant had served a year on a county council. In this simple manner a knowledge of sanitary law and the details of local government would be acquired slowly but surely, and we should be spared the constant spectacle of gross ignorance in our local and even occasionally in our imperial legislators.

With these introductory remarks I will pass on, and make a few criticisms on some desirable amendments

* A paper read before a meeting of the Church of England Sanitary Association.

of the law and on certain difficulties in its practical effect.

The sanitary laws governing the Metropolis are entirely analogous to those in force in the provinces, and represent a distinct advance on the Public Health Act, 1875; but my remarks will be rather directed to extra-Metropolitan law. The sanitary statutes deal with the following matters: Abatement of nuisances; provisions for sewerage and for sewage disposal; the provision, protection, and purity of water supplies; the destruction of insanitary property or amendment on a large or a small area in towns only; the health of workers in factories and workshops; the hygiene of canal boats and ships; the prevention of disease; and the wholesomeness and purity of food.

Considered as a whole, the enactments dealing with these subjects are superior, as before stated, to those of other countries, although from France, Germany, and the United States we may have something to learn in a few details.

Where English legislation has most failed is in the constitution of the authorities. In the first place, the supreme authority—the Local Government Board—is a political board, and the heads of the department in critical times are apt to think far more of the effects of their decisions on the votes of the locality than on the merits of the particular case. One of the most urgent reforms needed is a board of supervision, or health board, not connected with the poor law, and one the constitution of which is not intimately connected with politics.

The rural sanitary authority is practically the board of guardians. In the Parish Councils Bill this is not essentially altered, and experience has shown that the guardians, as a rule, are not the best body to be intrusted with the administration of the sanitary acts. Rural sanitation is, as compared with urban sanitation, in a stationary state. Here and there a rural sanitary authority shows activity and efficiency, but the majority have little knowledge or belief in the economical results of hygienic reform.

Passing from the imperfections of the authorities to the law itself, I would present the following criticisms:—

With regard to the law of nuisance.—The word “nuisance” admits of many meanings, but its meaning is restricted in the Public Health Act, 1875, to certain specified matters, these matters varying from a filthy ditch to the unfenced shafts of abandoned quarries; so that it is a matter of impossibility to frame any definition of “nuisance” which will include all matters contem-

plated by that act. I have, it is true, elsewhere attempted the following definition: “A nuisance under the sanitary acts is something which either actually injures, or is likely to injure, health, and admits of a remedy, either by the individual whose act or omission causes the nuisance or by the local authority,” and on trial it will be found that most matters dealt with are comprised within the definition. Without stopping to consider what are the things dealt with as nuisances, let us inquire into the practical working of nuisance abatement. Let the actual case of a defective drain leading into a sewer of a town be taken. A verbal complaint is made to the office of a sanitary authority that there have been cases of diphtheria in this house, and that there are from time to time bad smells. The sanitary inspector enters the complaint in the complaint-book, and visits the house, and sees that everything is clean, and that, so far as surface indications go, there is no nuisance. He therefore can make no definite report without having the ground open, the drain exposed, and so forth; but since the Public Health Act distinctly states (sec. 41) that no drain can be uncovered without a written “complaint” to the local authority, he has first to get the written complaint, and next to state the case to his local authority. His local authority, mark you, meet once a fortnight (on a Saturday). The verbal complaint has been made on the Monday following the meeting, so that when he has got everything in order he has to wait some ten or twelve days before he can get the formal order of the board to open this. At the next meeting he does obtain the formal order. On opening the ground he finds a very bad state of things; an old brick drain communicating with the town sewer; the drain flat, in a bad condition, and practically ventilating the sewer into the house. The landlord is an obstinate man, one who does not reside on the premises; he is a non-believer in sanitation, and possibly for that reason has been placed on the Sanitary Committee of the local board. The sanitary officer has, of course, to wait until the next meeting; that is to say, the final official report is made six weeks after the first complaint, less two days. This is in itself a long time. But now you will say this grievous nuisance will soon be put to rights. Nothing of the kind. We are at the commencement of a very lengthy legal process. We will pass over the attempts, likely enough to be successful, of the owner, who disputes the report, states that the drain was put in by himself, that it should be seen by the committee, the matter adjourned to the next meeting, and so forth. But you will imagine that a majority support their officer, and that a

notice in due form is served giving a time for the completion of the work. The time will probably be fourteen days. By the next meeting it is obvious the fourteen days will not be expired. At the following fortnightly meeting it will be reported that the notice has not been attended to in any way. A majority of the board then order proceedings to be taken. This means application for a summons and the fixing of a day for the hearing thereof. Few magistrates allow a summons to be returnable in less than a week. The defendant appears by his solicitor or counsel, the case is heard, argued, and decided in favour of the local authority, and an order is made for the defendant to carry out the work within a stated time. At last we shall have this unfortunate drain reconstructed. Nothing of the kind. If the advocate knows his business and is instructed to fight to the bitter end, he has the power of appealing to quarter sessions; and, says sec. 99 of the Public Health Act, 1875, "Where any person appeals against an order to the court of quarter sessions in manner provided by this Act no liability to penalty shall arise, nor shall any proceedings be taken or work be done under such order until after the determination of such appeal, unless such appeal ceases to be prosecuted." By taking advantage of these latter words the case can be prolonged almost indefinitely, for it is very difficult in some cases to know when the time arrives at which the appeal ceases to be prosecuted. In any case I have shown, by taking a common case of urgent nuisance, that with a sanitary authority meeting once in fourteen days, and an obstinate, contentious owner, the nuisance is not likely to be abated by following strictly the procedure laid down in the Act in a less time than six months. Appeals for the purposes of delay are provided against by the London Health Act, and under that Act involve pecuniary loss, but in the provinces no special power at present exists to inflict any penalty for a frivolous appeal. The remedy for the long delay in abating a legal nuisance is obvious. Power should be conferred on the clerk of the sanitary authority to sign notices on the written reports of the sanitary officers, such action to be confirmed, or otherwise, at the next meeting of the sanitary authority. The power of appeal should be regulated according to the provisions of the London Act. It should also be a standing instruction to the clerk of the sanitary authority that, once a notice by order of the board has been given, the resolution sanctions legal proceedings to enforce the same.

Although in the provinces, under the Public Health Act, 1875, there is no direction to bring the existence of

a nuisance immediately to the notice of the person whose duty it will be to remedy the same, a sanitary authority can easily direct its officers to pursue this course. The experience of the Metropolis shows how useful this procedure is. Under the London Health Act the first and immediate thing to do when a nuisance is discovered is to send what is called the "written intimation;" and it is found, although neglect of the written intimation is not a legal offence (for it has to be followed by a formal notice), that in various districts from 75 per cent. to over 90 per cent. of the written intimations are at once attended to, rendering the formal notice unnecessary.

The disposal of sewage and the provision of pure water supplies are intimately connected together, for the simple reason that were it not for sewage pollution ninety-nine out of a hundred sources of water would be fit for domestic use. With regard to powers for providing sewers and for the disposal of sewage, any unprejudiced person who studies the statutes bearing upon the question will consider that ample power has been given in this respect, and that if in any district a sewer is required and has not been provided, or that the drinking water is generally polluted, the fault is assuredly not in the law, but in those whose duty it is to see that its provisions are carried out. So, again, as to the pollution of rivers. Local authorities have long had, irrespective of the much-abused Rivers Pollution Act, quite sufficient power to preserve streams from pollution if they had only attempted with a will to enforce such powers. By sec. 69 of the Public Health Act, 1875, any local authority, with the sanction of the Attorney-General, may take proceedings in Chancery by indictment for the purpose of protecting any watercourse within their jurisdiction. Further than this, there is little doubt but that a stream might be purified by taking each pollution on its merits as a nuisance; and if taken as a nuisance in the larger sense, or as a whole, use may be made of sec. 255 of the Public Health Act, 1875, a section apparently universally overlooked by sanitary authorities. That section gives power to proceed with regard to nuisance wholly or partially caused by two or more persons. Any one or more of those persons may be prohibited from continuing any acts or defaults which, in the opinion of such Court, contribute to such nuisance, or may be fined or otherwise punished, notwithstanding that the acts or defaults of any one of such persons would not separately have caused a nuisance. Supposing a stream is polluted successively by the drainage of a single cottage, a farm-house, a hamlet, or a village. Although the drainage of the

cottage may, considering the volume of the stream into which it flows, be trifling and the pollution in point of magnitude in no way comparable to that contributed by the village, a sanitary authority can proceed against the cottage first or at the same time as against the other offenders. Partly by the apathy of the authorities, partly from the inherent difficulties of the subject, and in great part from the defects of the statute, the Rivers Pollution Act has not been a success. Recent legislation, it will be remembered, without taking away the power of the local authority to avail themselves of the act, conferred the same powers on County Councils, and some of the County Councils have endeavoured to purify the streams and rivers from pollution.

Let us now glance at the state and efficiency of the law with regard to the measures passed with the intention of directly combating disease. Extra-Metropolitan districts may be divided into districts in which neither the Notification nor the Prevention of Infectious Diseases Acts are in force, and districts in which one or both of those acts have been adopted. In the first case the powers possible to put in force are mainly those conferred by the Public Health Act, 1875, and comprise cleansing, disinfection, provision against exposure of the living infectious persons, provisions for the purpose of ensuring that rooms let for hire are first made safe and free from infection, special powers to cope with unusual or extraordinary epidemics possessed by the Local Government Board, special regulations with regard to milk and dairies, the establishment of hospitals, and the conveyance and burial of the dead. First with regard to cleansing and disinfection. The law outside the Metropolis is defective in not compelling every local authority to provide means of efficient disinfection. There are still a large number of important districts without any disinfection chamber and in which the whole process is a farce. A legal notice to cleanse and disinfect can only be given under the authority's special direction; so that with even weekly, or still more with fortnightly or monthly, meetings of the authority, action is far too slow to be efficient or to be of any practical utility. We have no remedy against dirty people, and might take a lesson from the rules of the Berlin Corporation. If a family are persistently dirty in their habits they are promptly turned out, the house cleansed and purified, and the people taken to shelters. "In these shelters they and their clothes are scrubbed and made clean. The workers among them are allowed to go out to their daily avocations, and daily they are made to cleanse themselves. Food is provided for them and their families

at a moderate cost, which is paid out of their earnings. If they are out of employment, they are put to some simple work within the shelter, and are paid for the work they perform."* This appears mostly to have had a good effect, and after a few weeks' training they are allowed to again occupy a home of their own. But there are some people incorrigibly dirty. Such people the criminal department of the State takes charge of, and drafts them off to work in the sewage fields, or some other department of the State, their earnings being in the first place applied to their own keep, and what is over to the support of their families. So, again, the Continental methods, although vastly inferior to our own, so far as regards the daily routine of disinfection in a well-officered, active sanitary district, in epidemic times are far more efficient. During the epidemic of cholera last year in republican France, the despotic power the mayors wielded, and the way those powers were enforced by the police would have made any one, with a high respect for the liberty of the subject, shudder. Whole families were turned out of infected houses at a moment's notice, and located in other houses until either the patient recovered or died, and the vacated place was disinfected, cleansed, and made fit to be re-inhabited.

A defect in our law is that there is no provision putting the entire disinfection in the hands of the local authority. The local authority may serve a notice requiring disinfection. By sec. 120 of the Public Health Act, 1875, it is the duty of the sanitary authority, upon the report of their medical officer of health, to serve a notice on the owner or occupier, to cleanse and disinfect a room infected from a case of zymotic disease. Disinfection is a highly technical operation, requiring some considerable skill for its efficient performance; but the notice is to be served upon a person who, probably knowing nothing about the matter, will carry a shovel of sulphur thrice round the room, or sprinkle the walls with "Sanitas," and send Betty in to sweep and wash the floor, and then declare that the disinfection has been done according to order. It is true that with the owner's consent the local authority has power to disinfect, and also in case a notice has not been obeyed (this latter necessitating delay), but my contention is that in all cases the disinfection should be done free of charge by the officers of the sanitary authority.

"*A Sweet Tooth.*"—It is calculated that the world's consumption of sugar is nearly 500,000 tons more than it was only two years ago.

* "A Study of Municipal Government," by James Pollard, C.A.

*THE METROPOLITAN SEWAGE
QUESTION.**

*By T. ORME DUDFIELD, M.D., Medical Officer of Health
for Kensington.*

IN my annual reports for 1885 and 1886, I referred, under the heading "Metropolitan Main Drainage," to the steps taken by the late Metropolitan Board of Works to clarify and deodorise the sewage of the metropolis before its discharge into the river; well-founded complaints having been made with regard to the condition of the river, resulting from the introduction of enormous volumes of crude sewage. I mentioned also that the Board, in order to prevent nuisance within the metropolis, arising from the discharge of offensive gases from the sewer ventilators, were adding disinfectants at numerous stations to the sewage as it flowed through the main sewers. It was hoped that this plan would insure the arrival of the sewage at the outfalls in a deodorised condition, and thus assist in the production of a satisfactory effluent; the object of the Board being to avoid the necessity for costly land filtration of the effluent, as recommended by the Royal Commission on Metropolitan Sewage Discharge, with a view to insure the removal of all odour and the possibility of "secondary fermentation." The Board, in giving effect to the views of their scientific advisers, incurred a large expenditure for works of construction, and in carrying out the system adopted, which involves the transport of the sludge, resulting from precipitation, in specially constructed vessels, out to sea.

The works at Barking, on the north side of the river, were completed some years ago; those at Crossness, on the south side, last year only. Shortly before these were opened, at the beginning of June, the County Council received a letter from the Secretary of State, transmitting an extract from a Report by the Medical Officer of Health for the Port of London, to the effect that the river water, in consequence of a few hot days, had already begun to smell badly in the neighbourhood of the outfalls. The Main Drainage Committee informed the Council (7th July) on the strength of a report by the Chief Engineer and the Chemist to the Council, that the river was then, already, free from smell arising from sewage, and from the black patches of discoloured water which formerly were so offensive. It was further stated that, even at low tide, no black mud was stirred up in the wake of the steamers passing up and down the river. These results appeared to the Committee to be very

satisfactory, and they directed a copy of the report to be sent to the Secretary of State. Some 30,000 tons of sludge per week were, at that time, being carried to sea from the outfalls. In a subsequent report, at the end of September, it was stated by the Chemist to the Council that, during the past summer, the river had been in a most satisfactory condition: there was no discoloration of the water by sewage matters or black mud; the foreshores had been clean; the aeration of the water, moreover, had shown a marked increase, the quantity of oxygen dissolved in the water being on one occasion (last day of August), the maximum quantity possible—these results being attributable to "no other cause than the operations at the Council's sewage precipitation works," designed and commenced by the late Metropolitan Board of Works. It appears to be generally admitted that the improved condition of the river has been maintained to the present time, and that its condition is now better than it has been for many years. Certainly, no complaints have been made in regard to it during the present year to date, although the rainfall has been scanty and the temperature high. The County Council determined last year, on the recommendation of the Main Drainage Committee, to try some experiments in application of the sludge to land. There is plenty of low-lying land on both sides of the river which might be raised with advantage. The late Metropolitan Board, at one time, contemplated large measures of this kind by the application of blocks of the dried sludge.

It may give some idea of the vastness of the operations in dealing with the sewage of London, to mention that the Main Drainage Committee, in a report dated 18th February, 1892, stated that in 1891, 8516 tons of lime, and 1563 tons of sulphate of iron, were required for the treatment of 30,172 millions of gallons of sewage at the Northern outfall at Barking Creek. The operation resulted in the production of 536,000 tons of sludge, which were sent to sea by their steamers. During the summer, 500 tons of manganate of soda, and 347 tons of sulphuric acid were employed in deodorising, mainly, that portion of the sewage which was untreated by precipitation. At the Southern outfall at Crossness, then uncompleted, 2228 millions of gallons of sewage were only partially treated, with 407 tons of lime, and 113 tons of sulphate of iron, which yielded 46,873 tons of sludge. The untreated sewage discharged into the river at this outfall during the summer, was deodorised by means of 923 tons of manganate of soda, and 532 tons of sulphuric acid. The cost for lime at both outfalls, during 1891, was about £8146, and that for sulphate of iron, £3184. The cost

* Taken from Dr. Dudfield's recently published annual report.

of manganate of soda and sulphuric acid, used at the outfalls and storm overflows, was £27,525; the great bulk of which, the Committee stated, would be saved when, as now, the precipitating operations are in full working order. To sum up: 32,400 millions of gallons of sewage were treated at the two outfalls, and 582,873 tons of sludge were produced; whilst 8923 tons of lime, 1676 tons of sulphate of iron, 1423 tons of manganate of soda, and 879 tons of sulphuric acid were used, the cost of these chemicals being £38,855.

In previous Annual Reports I summarised the objections raised by Sir Henry Roscoe to the system of sewage-disposal now in operation, in reports made by him, after elaborate investigations carried out for the late Metropolitan Board of Works. In common with other eminent authorities, he favours the view that the sewage, crude or after precipitation, must ultimately be taken to the land. At Paris it is stated that 5000 gallons, on an average, are applied daily to the acre. At this rate, 30,000 acres would be required for irrigation purposes, were all the sewage of London, averaging 150 million gallons daily, disposed of in this manner. A larger proportion of a partially purified effluent, presumably, might be used, thus reducing the amount of land required. The land, however, has yet to be found, and in any case a large outlay would be required on main and branch sewers, &c. Projects for conveying the sewage to the land have been before the public for thirty years and more, but nothing has been done, and probably it will be long before anything is done. The questions remain, therefore: Is the river of necessity to continue to be polluted, in a measure, as heretofore, supposing the precipitation works should fail of their full expected effect? Is there no alternative? These questions were attempted to be answered in my Annual Report for 1889 (pp. 189-192), wherein I described three schemes which had then lately been put before the public, viz., the "Amines Process," the "International Sewage Purification Process," and the "Webster Electrical Process." The two last-named processes are vouched for by Sir Henry Roscoe: the former as suitable for dealing with the sewage of small towns; the Webster Process as practicable even as regards the large volume of London sewage. In summing up my observations on this system I stated that it was averred, that "by the electrical process, the sewage is clarified; the bulk of the sludge is reduced to a minimum; smell is removed; and secondary putrefaction is prevented—results that could not be produced by chemical precipitation—the process being at once simple and economical. Assuming all this to be true, and it appears to be justified by the high

authority of Sir Henry Roscoe,* it may be inferred that an approach to a solution of the question of sewage disposal has been reached, and one in all respects only less satisfactory than that to which in the end we shall have to come; when every other process must give way to the only rational system—that, namely, of restoring to the land the valuable organic matters contained in the sewage.

PATENT ALIAS QUACK MEDICINES.

IN connexion with this subject we have received the following highly humorous effusion from one of our subscribers, Dr. J. Johnston, a well-known medical practitioner at Bolton. The occasion for which it was written was the Annual Dinner of the Bolton and District Medical Society. With only one exception all of the nostrums mentioned in Dr. Johnston's verses have received notice in the columns of *HYGIENE*, and these analyses and reports will appear, with many others, in the forthcoming reprint of "Patent *alias* Quack Medicines." (Ready, Jan. 1st.)

As the circumstance of bringing out this reprint has given rise, in some instances, to the erroneous impression that these articles have come to an end, we take this opportunity to explain that they constitute only the first series. Various analyses are now being made, and a fresh series will be commenced in *HYGIENE* for January 6th, 1894, that being the first number of the new volume (Vol. VIII.) of this periodical; and we shall have the pleasure of publishing frequently, during the year, further exposures of quacks and quackery.

A PATENT-MEDICINE SONG.

COME, friends and brother Medicals, and listen to my song,
Though it consists of verses ten, it won't detain you long;
It's all about the marvellous notions, lotions, draughts and pills,

That are guaranteed to cure the human race of all its ills.

Of weakness of the muscles or the nerves, wherever felt,
You'll speedily be cured by wearing an "Electric Belt."

What matter if it's only made of little bits of tin?

It's called *Electric* and the metal's nicely quilted in.

For heat spots, pimples, boils, and all "disorders of the blood,"
Clarke's mixture, with its *Pot: Iod:*, can't fail to do you good,
While Mother Seigel's Syrup, with its treacle and its aloes,
Is a priceless remedy for all, from slum to Royal palace.

And should your stomach be upset, or your liver be at fault,
The thing that's sure to put you right is a dose of Eno's Salt;
'Tis true a Seidlitz Powder would have much the same effect,
But as it bears no *patent* stamp, what good can you expect?

* Sir Henry Roscoe's conclusions are corroborated by Mr. Alfred E. Fletcher, H.M. Inspector under the Rivers Pollution Prevention Act for Scotland.

For rheumatism nothing can excel St. Jacob's Oil,
With its camphor and its turpentine, pure products of the
soil;

For sciatica that's chronic, or lumbago in the back,
Get Sequah's Indian chiefs to rub you till you're blue and
black.

That women folks are fond of pills, old Holloway could teach
'em,

But nowadays they're more inclined to pin their faith to
Beecham,

Whose pills they take by handfuls with a confidence nothing
shocks,

For don't they know that "Beecham's Pills are worth a guinea
a box?"

For crying babes and children we have nostrums by the score,
There are "teething powders," "soothing syrups," and
"mothers' friends" galore;

And while it's true that all such owe their power to "sleeping
stuff,"

They soothe and quiet the little dears—and isn't that enough?

And should your hair evince a strong desire from you to part,
At once apply the lotion made by Mrs. Allen's art,
And on each bald and barren spot 'twill soon sprout up anew,
While silvery locks will speedily regain their youthful hue.

But time would fail to speak of all the wondrous things we
hear,

And we marvel at the statements that in circulars appear,
How Warner's cure for instance can *cure* anything at all,
If it's true that it contains a large amount of alcohol.

In fact, unless you want to die, there seems no room for doubt,
That you must swallow every patent medicine that comes out;
And should you find by doing so you've quite destroyed your
health,

You'll know at least that you've increased the medicine ven-
dor's wealth.

Bolton.

J. JOHNSTON, M.D.

PUBLIC HEALTH REPORTS.

County of Chester.—Dr. J. Carter Bell, public analyst, reports that during the quarter which ended on September 30th, 206 samples were submitted for analysis. These included 66 of water, 50 of milk, 27 of butter, 14 each of spirits, vinegar, and cheese, 12 of lard, 5 of coffee, 3 of pepper, and 1 of tea. Eight samples were found to be adulterated, viz., 3 of butter, 2 of milk, 2 of whiskey, and 1 of malt vinegar. The adulterated butters contained 85 per cent. of foreign fat. The vinegar was not malt vinegar at all, but simply dilute acetic acid coloured with burnt sugar.

Speaking concerning milk, Dr. Bell points out that the standard adopted by the Society of Analysts is so low that no dairy of well-fed cows could yield milk of such inferior quality. Evidently he does not hold with

the agitation which has taken place amongst dairy-farmers and dairymen with the view of inducing the authorities to lower the standard. In our opinion, instead of doing this, if they find their business unremunerative, they should aim at raising both the price and the quality. If they did the latter, the consumers would not mind a corresponding increase of cost. Dr. Bell has gone carefully into the subject of the analysis of milk, having examined hundreds of samples that he has himself seen taken from the cows on Cheshire and Lancashire farms, and he states the average composition to be as follows:—Total solids, 13·32; solids not fat, 9·31; fat, 4·01. The comparison of this with a report made by the private analyst to one of the largest London dairies upon the milk supplied during the last twelve years, representing 120,000 samples, carries out Dr. Bell's argument, the London dairy analyst having given the average composition of this large number as follows:—Total solids, 12·9; solids not fat, 8·8; fat, 4·1.

THE USE OF COAL-GAS FOR DOMESTIC PURPOSES OTHER THAN LIGHTING.

THIS subject is one which requires consideration from many points of view. As the comparative cost of coal and gas for heating purposes is an element of importance, and, as prices vary so greatly, it will be the simplest method to adopt a standard price for both, which will admit of easy calculation for the varying prices of the two fuels. Taking coal at 17s. per ton we get eleven pounds weight for one penny, and taking gas at 3s. 4d. per 1000 cubic feet we get twenty-five cubic feet for one penny; twenty cubic feet of London gas (sixteen candles), have a theoretical heating power equal to one pound of good coal, so that, at the comparative prices given, gas is nearly nine times the cost of coal, provided both fuels could be burnt with equal economy, which is far from being the case on the small scale required for ordinary domestic use. Where the work is small and intermittent, such as cooking, bedroom fires, and bath heating, gas comes out in practice far the cheaper fuel, but where the work is fairly regular, such as the heating of ordinary living-rooms by open fires the cost of gas averages in practice about three times that of coal. Of course, by the use of warm-air arrangements combined with a gas fire, the cost may be reduced quite 50 per cent., and the same economy may be practised with coal or coke, by using coke stoves, but for the fact that they are very unpopular in this country; rooms heated by air-warming arrangements being comparatively close and "stuffy."

This feeling is caused by the upper part of the air being warmer than that near the floor, the practical result being, that in rooms heated in this manner it is difficult to keep the feet warm, even with the thickest carpets.

One of the commonest fallacies with regard to gas is the idea that a given quantity of gas burnt in a common lighting burner gives less heat than if consumed in a Bunsen or atmospheric burner. This is entirely a mistake. Gas, whether burnt in a common lighting burner, a regenerative lamp, a Bunsen or atmospheric flame, or a blowpipe or furnace gives, if properly burnt, absolutely the same quantity of heat for the same amount of gas under any and every condition, the only difference being in the concentration, or the convenience of its application for any special purpose.

For instance, if a large air space has to be warmed by burning gas in it, it is a matter of absolute indifference whether we use common lighting jets, regenerative lamps, atmospheric burners, blowpipes, or blast furnaces, the result is exactly the same in each case if the air is kept in circulation. For every cubic foot of London sixteen-candle gas burnt we get a heat of 660 units, *i.e.*, a heat which, if perfectly utilised, would raise the temperature of 660 pounds of water 1° Fahrenheit. In the large air space under consideration we should, with any of the methods of burning, obtain the whole of the heat in useful work, but if we wanted, say, to melt, one pound of cast iron the only method by which any useful work could be obtained would be in a blast gas furnace, where the whole of the heat can be concentrated rapidly on one spot.

This explains why under ordinary circumstances an atmospheric burner is so much more efficient than a lighting burner for boiling water; the heat from the atmospheric burner can be localised and concentrated on the work required, and less is lost in the surrounding air.

Having now settled a basis on which the results may be compared, and explained some of the sources of possible error, we may consider the various purposes to which gas may be advantageously applied for domestic use and the points which require attention to prevent failure and annoyance.

Domestic Cookery. — Under ordinary circumstances the whole of the products of combustion come into the kitchen; they are in themselves free from odour and no nuisance in any way, but they may easily become a very serious annoyance if some simple points are neglected. The stench and nuisance of cooking by a coal fire is inappreciable from the simple fact that the whole goes

up the chimney; if the same nuisance were to appear with gas cookery it would be intolerable in any house, and to prevent this certain points are essential. The burners must be clean and must burn with a clear greenish-blue flame: the vessels must be clean outside; a pan used on a coal fire and then placed on a gas-burner will make a suffocating smell through the house, owing to the tarry matters deposited on the vessel by the imperfect combustion of the coal. Pans, &c., containing fatty matters must not be allowed to boil over on the burner, as the smell of charred fat, or any animal or vegetable matter, is most offensive; for similar reasons roasting tins must never be placed above a gas flame, either in an oven or over a boiling-burner. If perfect sweetness in the kitchen is required, the use of the frying-pan must be prohibited, as the smell from frying is always unpleasant; it is quite unnecessary, as the work can be done far better by a gas-grill. Fried food is indigestible and cheap, but the cheapness does not compensate for its indigestibility.

We now consider the cost. Taking an ordinary gas-cooking range, such as is usually hired out by the gas companies, the expense depends largely on the care and supervision exercised, and to demonstrate this I will give two extreme cases, the results of which have been carefully taken, and may be depended on as being fair examples. The first is one of a small and careful household, where close supervision is constantly exercised; the other is that of a household conducted on a liberal scale, under the control of a good *chef*, where everything is done in the most perfect manner; the average may be taken between these.

"Cooking regularly for six persons and boiling water for general purposes, no fire in the house during the summer months; gas 2s. 4d. per 1000 cubic feet. Total cost of twelve months' cooking, £1 2s. 7d."

This is extraordinarily low in cost and is a rate which will rarely be reached; the other case is equally clear on the opposite side.

"From the 4th of January, 1888, to the 2nd of July, 1889, cooking for ten persons, the total gas consumption was 41,700 cubic feet, which at 2s. 3d. per 1000, amounts to £4 13s. 9d., or 5s. 2½d. per month. The average consumption of coals in the fire-range before using gas was one ton per month, costing 20s."

These are actual cases in practice, not estimates, but it is quite evident that even in the latter one no actual waste of gas has been permitted, and that the furious boiling over and general burning of things by extravagant and unchecked gas consumption have not existed.

It is a curious fact that roasting, which is always a costly process before an open fire, is the cheapest process carried on by gas, as the average gas consumption per pound of meat roasted in ten different gas cooking-ranges, by different makers, did not exceed three cubic feet of gas per pound of meat roasted, the lowest being two cubic feet and the highest four and one-third cubic feet per pound of meat. This difference was caused almost entirely by the different sizes of the ovens used, the cost being ruled by the size of ovens, rather than by the weight of meat roasted.

Boiling Water.—With gas at twenty-five cubic feet for one penny, in ordinary broad-bottomed pans or kettles, the cost averages one penny for every five gallons boiled.

The cost of grilling is, taking the average of a number of tests, almost exactly double that of roasting, whereas frying, the cheapest of all methods, costs considerably less than roasting the same weight of meat, although there are no statistics available from which average results can be obtained.

It may be taken as an absolute rule, without any exception, that gas cooking can always be done in an ordinary kitchen without special ventilation and without any offensive smell, and where any exists it is a sign of either waste, dirt, or carelessness. As to its popularity this may be estimated by the fact that one English gas company has out on hire, at the present time, over sixty thousand appliances for cooking and heating, at least one-half of these being for cooking purposes only.

Bath Heating by Gas.—This is a subject which requires very much more attention than has been given to it. The modern fashion of extreme speed of heating entails conditions which are not always possible, and when these are neglected or overlooked, a very distinct element of danger appears. This has been proved by several fatal accidents, if they may be classed as accidents. With the best apparatus which can be made, a 30-gallon bath cannot be heated by less than a consumption of 30 cubic feet of gas. This will require at least 300 cubic feet of air to consume it, and the resulting 330 cubic feet of burnt air and gas will render fully 3000 cubic feet of air totally unfit for respiration. If the heating is done in 15 minutes in a bath-room 10-ft. square, the whole of the air in the room becomes quite unfit for respiration in five minutes, and the only possible remedy is to connect the heater with a reliable flue, which can be absolutely depended on as being free from risk of down draught. This is by no means a simple matter in most places where no flue exists near the bath-room, and although there are some methods by which

the deficiency may be overcome, these, like many house-chimneys, are not always successful, owing to local conditions and peculiarities. The only safe way to fix a rapid or instantaneous bath-heater is to put the whole matter in the hands of an experienced fitter, and make him responsible for the success or failure. A man who thoroughly understands this class of work will know at once the difficulties, but of course such a man is not likely to be the cheapest. In the absence of an absolute guarantee from the fitter it may be taken as a rule, without any exception, that a bath-heater which will heat an ordinary full-sized bath in the usual small bath-room, is unsafe if it will do the work in less than from $1\frac{1}{2}$ to 2 hours, and this, for ordinary domestic use, is quite quick enough. To quote the saying of a friend, "People do not, as a rule, get dirty so quickly as to require a bath oftener than every two hours." With regard to rapid bath-heating, fashion is very well in its way, but it is not policy to risk life for the sake of fashion, when circumstances are against safety; and bearing on this question, it must be remembered that rapid heaters in which the gas is burnt in ordinary illuminating flames are quite as dangerous, without a good flue, as any other form, although many makers, who should know better, assert the contrary. The rapid combustion of a large quantity of gas must of necessity remove oxygen from the air, and as a matter of fact, in a small close bath-room the burner of a large rapid bath-heater would remove the oxygen so rapidly from the air that it would extinguish itself, and for this reason the products of combustion must be removed. This does not apply to slow working heaters with a small rate of gas consumption, as the natural diffusion which always takes place is sufficient to render this harmless.

Gas Fires and Stoves for the Sick Room.—These, to be satisfactory require to be different to the ordinary gas fires in living rooms. In a sick room it is necessary that the temperature shall be kept steady, the fire at times requiring to be turned very low. This, in the usual pattern of iron fret, or hollow ball fires, is not possible, as neither of these forms can be always depended on to work at less than one half their normal power, and to make these suitable for sick rooms it is necessary to divide the burner into two or more parts with separate taps, which is an undesirable and expensive complication liable to cause trouble in unskilled hands. We may consider that for sick-room use the following conditions must have the first attention:—1. Great range of power, down to the lowest, without risk of lighting back at the jet. 2. Comparative silence. 3. Absence of strong

light. 4. The power to use a bronchitis kettle or steaming arrangement when needed.

To fill the whole of these conditions it is necessary to have a fire surface of fibrous asbestos on a flat brick, the burner having much smaller holes than are necessary for the iron fret or hollow ball fires. Where the temperature of the air of the room is important, the fire should, for economy's sake, have an air-warming arrangement combined with it, and for steaming, either a boiling burner attached as a trivet to the fire, or a separate boiling burner placed on the hearth, the latter being perhaps the best, as the kettle can be got well forward into the room. An exceedingly good substitute for a bronchitis kettle is a blanket or heavy bath-towel wetted and hung before the fire. Except in affections of the lungs, warm air in a bedroom is objectionable to most, and a simple source of radiant heat is by far the most agreeable; all air-warming arrangements have the same objection as hot-water pipes, they cause a feeling of "stiffness" which is intensely disagreeable to many people.

With regard to noise, all atmospheric flames cause more or less sound, and unfortunately all taps have the same defect; some are excessively noisy, and the sound, travelling along the tube, appears to come from the gas-burner, exaggerating a defect which is in itself not usually great. The best method to reduce the sound is to use a good gas governor on the main supply so as to prevent excessive pressure.

Many extraordinary statements as to the cost of gas-fires have been made, not one of these being based on any actual results, or giving any basis to calculate from. The mistake is that the calculations have been made from the air space to be heated. The absorption of heat by the air varies enormously according to the moisture held in suspension, but under any circumstances it may be quite ignored as a basis on which calculations must be made for heating rooms of different shapes. The heat is almost entirely expended on heating the walls of a room; they appear to have an unlimited capacity for the absorption of heat, and the calculation must be made from the wall surface, the following rules being the result of repeated trials on both a large and small scale under varying conditions. We will take first the cheapest possible form of gas heating, flueless stoves and limiting the ventilation. This system is suited only for beer-cellars and stores, and is given as a standard of reference for the greatest available duty for the fuel used. Rule for finding the gas consumption required to obtain any exact temperature: for every 1200 square feet of wall surface (excluding ceilings and floors), a consumption of one cubic

foot of gas per hour is required for every 1° Fahr. rise of temperature. Example, a room without flue, kept close, and badly ventilated, size 30 × 30 × 10 feet high, would require a gas consumption of twenty cubic feet per hour to raise the temperature 20° Fahr.

The figures given are for continuous heating, night and day, *i.e.*, for retaining a given temperature after it has been obtained. The actual heating up of the room and walls is a comparatively slow process, and depends on the speed required. It may be taken as a rule that for heating up a room which has been allowed to cool, at least double the consumption will be required for the first three or four hours. If the products of combustion are carried away and the room is fairly ventilated, the gas consumption will average nearly double this, and it may be taken as a safe rule for a gas-fire and air-warming arrangement, that a well-ventilated room will require, for every 600 square feet wall surface, 1 cubic foot of gas per hour for every 1°F. average rise of temperature. Where a fire alone is used as a source of radiant heat, the temperature of the air varies so greatly that exact experiments are impossible, the air only becoming warm as the radiant heat is absorbed by the walls and solid contents of the room, so that it cannot be considered as an air warmer. The cost given above will apply also to living rooms, except when a gas-fire is built up in an ordinary coal fire-grate. This, owing to its backward position and its surroundings, is a most costly luxury, and can only be adopted when expense is no object. It is a most popular form of fire, and its use is rapidly extending, in spite of the extravagant cost; but, of course, when used in drawing-rooms for short periods, the cost is a very secondary matter, as compared with convenience and absence of dirt.

With regard to condensing stoves, or 'syphon' stoves as they are sometime called, their power is very small for their size and cost, and the largest are only suited for very small rooms. It is the custom of most makers to hide the outlet for products of combustion, and this has led to a general belief that all the products of combustion are condensed. This is not the case; only the sulphur compounds and the water of combustion are condensed, and the carbonic acid escapes into the room. Its presence may readily be detected by analysis of the air, but as it is quite inert, the only effect is to reduce the percentage of oxygen in the room, and to cause, to a certain extent, the 'close' feeling which is caused by all flueless stoves. Carbonic acid evolved in the breath is known to be both offensive and dangerous in confined places, but this is only on account of the germs and volatile organic matters with which it is contaminated.

The advantages of the use of gas as a fuel are not only great, but many of them are simply unapproachable by any other fuel. In the sick room we can not only get warmth, but we can get precisely the kind, and the quantity we require, dry or moist, convected or radiant, as needed. The warming of food, and other matters for sick-room and nursery use, is simple, quick, and certain, night and day; and the disturbance of restless patients and children is avoided. In the preparation of food, the perfection of the result, and the absence of burning and waste, irrespective of the economy in labour and expense, are quite sufficient to put gas in the front rank. With proper arrangements bath-heating can be done by gas in a way which is simply impossible with any other fuel. At the same time we must not expect special miracles and those who expect a down draught in a chimney to be cured by the use of a gas-fire, will always be doomed to disappointment.

THE COLD BATH AND ITS DANGER.

By Dr. T. W. SMART, M.R.C.P., *formerly Physician to the Salisbury Infirmary.*

It is an obvious fact that there are remedies and modes of treatment, at one time of the greatest possible benefit, and at another productive of dangerous, if not fatal, consequences; the difference not so much owing to the remedies as to the conditions under which they are administered. This remark applies with much force to the habit of using the cold bath, and I am induced to notice the fact from feeling very strongly on the subject, owing to the occurrence of fatal results in three cases, and all of them attended by very similar circumstances and occurring about the same time. In all, the facts were the same, as follows:—Each of these gentlemen had risen from his bed to immerse himself immediately in his bath of cold water, as had been probably the daily habit, and hitherto with impunity; but now what occurred? Downstairs the breakfast was waiting for his arrival; he did not come. Alarm was felt, and relatives or friends hurried upstairs; no answer was given; the door of the bath-room was forced open, when the appalling sight presented itself of the gentleman lying on the floor (having evidently recently left the bath) in an unconscious state, and either dying or already dead from fatal syncope. These three were men in the prime of life, accustomed to take active exercise, apparently in health, but known, alas! to have weakness of the heart and circulation, disregarded probably by themselves,

though not by their medical advisers, and we see the result.

Three such cases, happening nearly at the same date and under such similar circumstances, naturally appeal very forcibly to one's mind, and induce the inquiry as to whether the use of the cold bath may not in many cases have a very dangerous tendency. There must always be a very strong shock to the system by rising from bed with a temperature of about 95° , and plunging immediately into a bath of cold water with a temperature perhaps but little above the freezing-point; the effect of this sudden shock, or check, on the system must be to drive the blood from the skin to the internal organs, to oppress the circulation, to force the venous blood back on the heart, which, if weakened by structural changes, becomes suddenly over-powered and unable to overcome the increased pressure on its mechanism, and so a fatal termination rapidly ensues.

There can be no doubt that a strong and healthy man may take this plunge, not only with impunity, but even feel all the better for it; yet there are many apparently as strong and healthy as he, who, in reality, have an organic weakness of the heart, which to them is a source of the greatest danger. The man in perfect health leaves his bath feeling light and refreshed, with a glow on his skin, and in this state he descends to join the breakfast party below in buoyant health and spirits, and ready for any active exercise or duty he may be called on to engage in. Another man not in health, but only apparently so, leaves his bed-room pale, chilly, and shivering; has but little appetite for his breakfast, and perhaps may require some kind of stimulant to put his circulation into regular action. In the former case the cold bath has proved an excellent and invigorating stimulus, in the latter its effects are the very reverse; it proves itself a powerful depressant, and, if persevered in, will assuredly lead to mischief, if not death itself.

At the present day, when athletic exercises of all kinds are so much the fashion, I fear the foundation is often laid, unconsciously, no doubt, of small beginnings of organic mischief, chiefly of the central organ of the circulation, which, as life advances, lead to more pronounced and serious derangements of the health. It is of the utmost importance that young men should have the danger set before them, in order when growing older to seek the advice of a physician for the purpose of ascertaining the fact whether or no the heart is in its normal condition; if not, greatest caution should be taken in avoiding every possible source of danger, one of which is, I am firmly convinced, the use of the cold bath

in the manner I have indicated. Let every man who has reached the age of thirty-five years, consult some competent authority, and be guided by the excellent advice he will be sure to receive.

*PRACTICAL MEASURES FOR THE PREVENTION OF TUBERCULOSIS, OR CONSUMPTION.**

By LAWRENCE F. FLICK, *of Philadelphia.*

The history of tuberculosis in all times, and in all countries in which any history of it is recorded, is a broad demonstration of its contagiousness, and by inference, of its preventability. So insidious, however, is its contagiousness, that, although this has been recognised by the greatest minds of every age, and has at times taken strong enough hold of the lay as well as of the medical mind to beget successful measures of prevention, at no time in the history of medicine, prior to the present age, had it been recognised and understood by the medical profession as a body. The contagious theory of tuberculosis is now so far accepted by the profession that it is being taught in our medical schools; so that the medical profession is committed to it, at least through its teaching faculty. The prevention of the disease has, moreover, had sufficient practical testing to remove it from the category of experiments and place it upon the list of sanitary expedients deserving of the most earnest attention of sanitarians. Spain, by teaching her people the contagious nature of the disease in question, and by practising crude and unscientific but, nevertheless, successful methods of prevention, avoided carrying the disease into its new colonies in America; Italy, by similar methods, in less than a century, reduced the mortality-rate from the disease in her midst from that of a most virulent epidemic to a comparatively rare disease; England, by establishing special hospitals for the treatment of pulmonary tuberculosis, and the consequent isolation of its tuberculous poor, reduced its mortality 50 per cent. in forty years; and Philadelphia, by preaching the doctrine of contagion and teaching its people methods of avoidance and prevention, has reduced the

mortality-rate from the disease about 20 per cent. in eight years. With these facts before us, and with our profession committed to the theory of contagion, we cannot, without failing in our duty, remain inactive while this disease carries off hundreds of thousands of human beings to a premature grave, and inflicts indescribable loss and suffering upon hundreds of thousands of others.

A comprehensive scheme for the prevention of tuberculosis implies: 1. Registration of all cases of the disease which have arrived at the breaking-down or infectious stage. 2. The education of the public at large and of the people immediately concerned, as to the contagious nature of the disease, and how to avoid contracting it, and how to avoid transmitting it to others. 3. The careful and thorough disinfection of all infected houses, penal and reformatory institutions, conveyances, and public places. 4. The establishment of special hospitals for the treatment of the poor suffering from the disease. 5. Government inspection and regulation of dairies and slaughter-houses. 6. The enactment of laws and ordinances forbidding practices as a result of which persons are liable to be infected. 7. The restriction and regulation of interstate and international emigration of persons suffering from the disease. 8. The retirement of all tuberculous patients in the infectious stage from occupations in which they can infect others, and the pensioning of those who cannot be maintained in hospitals.

The enforcement of such a scheme in every particular would completely wipe out tuberculosis in a very few years. Of this there can be no doubt, whether our conclusions be evolved from our present knowledge of the etiology of the disease, or from what history records of the past attempts at prevention.

As regards the merits of the respective measures named there will probably be differences of opinion. I have enumerated them partly in the order of their importance, as I rate them, and partly in their natural order of sequence. The feasibility of their enforcement will necessarily vary, and ought to determine which should be adopted, when all cannot be adopted. At the present stage of sanitary science, and as governments are now equipped for the prevention of disease, there is probably no country in which the entire scheme could be put into operation; nor is it likely that any government is at present in a position to thoroughly enforce any of the measures. The prevention of tuberculosis is, however, so easily accomplished that even the incomplete enforcement of some of the measures would bring about a marked reduction in the mortality from the disease.

* A Paper read before the Section on Hygiene, Climatology, and Demography of the Pan-American Medical Congress, September, 1893.

DIETETIC NOTICES.

Whole Wheat Flour with Hypophosphites.—One of the best exhibits at the recent Food and Cookery Exhibition, held in London, was the article bearing this name, and shown by the manufacturer and patentee, Mr. S. Rawsthorn.

It is composed of finely ground wheat, thus giving all of the nutrient constituents of the grain, and having the hypophosphites of lime, soda, and iron added in definite proportions, it constitutes a perfect food when made into bread, cakes, or porridge. It is very agreeable to the taste, and, still more important from a dietetic point of view, it possesses highly nutritious and digestive qualities. While it may be regarded as excellent for the healthy, it is especially indicated for all who suffer from indigestion, debility, nervous affections, rickets, and other disorders arising from mal-nutrition.

The same manufacturer has also lately brought out a new kind of farinaceous food, to which the distinctive name of Limona has been given. It makes capital puddings, biscuits, and porridge, and is likely to become as great a favourite for general and special use as the Whole Wheat Flour with Hypophosphites. It facilitates the digestion of milk, which valuable article of diet many invalids and children are unable to assimilate, whether alone or in the form of puddings, &c.

RECENT HYGIENIC PATENTS.

THE following list of recent Applications for Patents is compiled specially for HYGIENE by Mr. W. Mellersh-Jackson, Patent Agent, 75 Chancery Lane, London, W.C., from whom further information may be obtained.

No. 23,279. "An Improved Respirator." R. L. JEFFREYS.—December 4th, 1893.

No. 23,317. "Improvements in Water Closets." W. BARTHOLOMEW.—December 5th, 1893.

No. 23,373. "An Improved Drain and Soil Pipe Testing Apparatus." H. E. BURNET.—December 5th, 1893.

No. 23,383. "A Safety Attachment for Dress-pins, and the like." W. A. ISRAEL and G. E. SPARKES.—December 5th, 1893.

No. 23,400. "Improved Process for the Preparation of Coffee." W. THORMEYER.—December 5th, 1893.

No. 23,404. "Improved Device for Preventing the Overflowing of Water Closets." W. P. THOMPSON.—December 5th, 1893.

No. 23,405. "Improvements in Automatic Ejectors or Feeders for use in connexion with Disinfecting Apparatus, or other purposes." W. P. THOMPSON.—December 5th, 1893.

No. 23,503. "An Improved Device for Injecting Insect and other Powders." W. P. THOMPSON.—December 6th, 1893.

No. 23,526. "Improvements in Waste-Preventing Cisterns and Syphons for Water Closets, and other purposes." H. BARTLETT.—December 7th, 1893.

No. 23,531. "Improvements in the Purification of Air discharged from Hospitals for the Treatment of Infectious and other Diseases, or from Dwellings, Manufactories, Works, and other Buildings." W. HENMAN.—December 7th, 1893.

No. 23,589. "The Flushing of Closets and Drains by waste water, and Appliances connected therewith." J. A. NOEL.—December 7th, 1893.

No. 23,600. "Improvements in Churns for the Manufacture or Production of Butter." T. NUTTALL.—December 7th, 1893.

No. 23,601. "An Improved Trap and Check Valve for Preventing the escape of Sewer Gas and Storm Waters at Sewer Gullies, and other places." J. KING.—December 7th, 1893.

No. 23,713. "Improvements in Apparatus employed in the Chemical or other Treatment of Sewage." F. and F. W. SMITH.—December 9th, 1893.

No. 23,718. "Improvements in, or appertaining to, Aspirators employed for Surgical and Medical Purposes." T. LOGAN.—December 9th, 1893.

NEWS AND NOTES.

Manchester.—The City Council have decided to promote in the next session of Parliament a bill entitled "The Manchester Corporation Act, 1894," for the purpose of enabling the Corporation to effect various public improvements, including the widening of the streets adjacent to the cathedral, and the making of new approaches to the Ship Canal. The mention of the Canal reminds us to express a hope that while ornamental and commercial improvements are not lost sight of, energetic steps will be taken to improve sanitary matters by making the river Irwell and the Canal docks less dangerous to the public health.

Lead Poisoning.—In a recent number of HYGIENE we pointed out the serious risks to health and even life incurred by young females engaged in the various industries in which lead is used. We are glad to learn that the Departmental Committee having this group of trades under their special supervision, have just issued a report recommending the prohibition of female employment under twenty years of age in any of them, and the complete abolition of female labour in all manufacturing processes where the operatives have to come in direct contact with white lead.

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Trade Refuse, defined under the Public Health (London) Act, 1891, section 141, as "the refuse of any trade, manufacture, or business, or of any building materials," is a common source of trouble with the sanitary authority, when the question of removal comes on. The Hammersmith Vestry have, since the 1st of this month, carried out a regulation, according to which trade refuse is removed by special

arrangement only, at a charge of 3*d.* per dust-basketful up to twelve baskets, 5*s.* 6*d.* for any quantity above that up to a load, and at the rate of 3*s.* per ton (minimum charge, 1*s.* 6*d.*), if delivered at the vestry's wharf. The vestry do not include the removal of offal from the premises of butchers, poulterers, and fishmongers in this arrangement.

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An International Exhibition will be held at Vienna next year, in connexion with Economical Food, Army Supplies, Protection of Life and Transport. Particulars can be obtained from the Imperial Austro-Hungarian Consulate-General, 11 Queen Victoria Street, E.C.

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Catarrhal Affections.—Dr. Chanteresse, a well-known French bacteriologist, says that these may be prevented in the initial stage, by rinsing the nose and gargling the throat with water made antiseptic by coal-tar, &c. For an antiseptic snuff he recommends the following:—Menthol, 250 centigrammes; hydrochlorate of cocaine, 50 centigrammes; antipyrin, two grammes; sugar of milk, two grammes; to be used occasionally.

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Clerical Allowance of Food.—In the reign of Edward IV., an archbishop was allowed to have two swans or two capons in a dish, a bishop one; an archbishop six blackbirds at once, a bishop five, a dean four, and an archdeacon two.

If a dean had four dishes in his first course, he was not allowed to have custards or fritters.

An archbishop was allowed to have six snipe at once, an archdeacon two.

Rabbits, larks, pheasants, and partridges were allowed in the same proportions.

A canon residentiary was to have a swan only on a Sunday, a rector of sixteen marks to have only three blackbirds in a week.

ANSWERS TO CORRESPONDENTS.

A Lady Subscriber (Hull).—There is no one of the name you give in the *Medical Register*. We should like a little more information.

W. D. O. (Dublin).—The average rate of mortality in thirty-four of the largest colonial, European, and other foreign cities, with an aggregate population of twenty millions, during the past year was 25·5 per 1000. This exceeded by 4·8 per 1000 the mean rate in the thirty-three largest English towns, with a total population of ten millions.

T. H.—See *HYGIENE* for November 17th.

D. R.—1.—We should be glad to see the report. 2.—Our publishers could print and bring out your book quickly and cheaply.

S. L. G. (Manchester).—The next (eighth) volume of *HYGIENE* will commence with the January 6th issue. Subscription for twelve months (post free), 6*s.* 6*d.*

Puzzled.—Spence's aluminio-ferric process of treating sewage will meet the difficulty.

A Sanitary Inspector.—Get the "Housing of the Working Classes Act, 1890."

A. J.—Eggs are used for many purposes in manufactures. The whites are used for clarifying wines, France alone requiring, it is estimated, 80,000,000 of eggs annually for this purpose. They are also used in photographic establishments and in calico-printing. The yolks for dressing skins in glove-making and calf-leather. A good test for eggs is to put them in water; if bad, they will stand end up, but if good they will lie flat.

R. G. L.—Ozone is a modification of oxygen, probably the result of electrical action.

M. O. H.—The Board cannot compel you to perform the duty you speak of.

A. W.—The largest of the British fungi (of which, according to Dr. Cooke, there are at least 4000 species) is the *Polyporus squamosus*, which acquires a diameter of six or seven feet, and weighs when full grown upwards of thirty pounds.

M. D. (Ballarat).—1.—We are glad to learn that *HYGIENE* is so highly appreciated in the colony. 2.—The analysis shows that the water is wholly unfit for drinking purposes, and the institution ought promptly to obtain a purer and safer supply.

A Plumber.—The common "dip-stone trap" is often a delusion and a snare.

A Sufferer.—We do not prescribe in these columns. Out of nine medical practitioners in your town, you can surely find some who will treat your case efficiently. See the article on "Newspaper Prescribing" in a recent number of *HYGIENE*.

EDITORIAL AND PUBLISHING NOTICES.

EDITORIAL.—The Editor begs to express his thanks to numerous correspondents, and to state that he will be pleased to receive any articles or correspondence coming within the scope of *HYGIENE*, books or pamphlets for review, reports of medical officers of health, items of general or local sanitary interest, newspapers (marked at the part to which it is desired to draw attention), &c.

ADVERTISERS are requested to bear in mind the greatly increased circulation of *HYGIENE*, with its weekly issue and reduced price. In addition to the large regular circulation, many thousands of copies are distributed annually to sanitary officials, medical men, private addresses, public libraries, clubs, hotels, &c.

HYGIENE,

A SANITARY WEEKLY PAPER.

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POISONING BY CONTAMINATED MILK.

THROUGH the courtesy of the Editors of the *Practitioner* we have received an advance-proof of an article which will appear in the issue of that excellent monthly periodical for January.

It is a report by Dr. J. R. Gray, Assistant Medical Inspector to the Government of Victoria, Australia, upon two cases of fatal poisoning of children in St. Kilda; and it has an important bearing owing to the cause having been traced to an impure milk supply.

Both of the children, one aged three years, and the other seventeen months, died within forty-eight hours from the commencement of their illness—the former being attacked on August 11th, and dying on August 13th, and the latter being taken ill on August 12th, and dying on August 14th. Dr. Gray made a very complete inquiry into the circumstances of each case; both children were living with their parents, at some little distance from each other, in a suburban district of St. Kilda, called Elwood; by no means salubrious in its general character, the houses of the inhabitants, and their surroundings. In both instances, the milk taken by these children was obtained from the same small dairy, where Dr. Gray found a condition of things which almost defies description, so filthy and dirty were the premises. The house occupied by this dairyman, his wife, and three children was a weather-board structure, divided by a passage into two compartments. One of these compartments, of only 960 cubic feet capacity, was the bedroom, and was *minus* chimney, air-flue, or wall-hole. The other compartment, which served as kitchen,

parlour, and shop, had a capacity of 600 cubic feet only, and the floor was formed by the bare earth, made more conspicuous by the presence of a few ragged pieces of oilcloth. A closet stood close by the window of this second compartment, placed over an open earth-cut drain; the drainage arrangements were as primitive as the house (if any one may use that term of such a shanty) itself, for they consisted merely of two open earth-cut channels, choked with filth at the time of the medical inspector's visit, and running past the open milking-shed to discharge on a vacant allotment ninety feet off. Immediately adjacent to the house were the milking and another shed for the cows, a poultry-house and a store-room. The general sanitary conditions, judging from Dr. Gray's report, may be thus summed up:—House dirty, sheds filthy, surroundings squalid in the extreme. The water supply for domestic and trade purposes at this model of what a dairy should *not* be was derived from a large underground tank, with lime-stone and cement sides, covered by planks so dilapidated as to allow the ready entrance of all kinds of impurities into the tank.

An analysis of this tank-water by Mr. C. R. Blackett, the Government Analyst, showed that it contained 162·5 grains of total solid residue (including 36 grains of organic and volatile matter, and 45 grains of chlorine) per gallon; also, in parts per million 0·026 of free ammonia, 0·42 of albuminoid ammonia, 0·1 of nitrates, and a trace of nitrites.

The cows were grazed on some grass land in the vicinity, and brought to the place daily to be milked. Even in this respect, it was an example of milk con-

tamination made easy, for in the way to and from the grazing field they had to pass numerous channels loaded with sewage filth from other houses, and the cows used to drink from these, as proved by the medical inspector's own ocular observation.

Many of our readers, will, doubtless, before reaching this point of our condensed account, have arrived at the conclusion that this non-model dairy was quite sufficient to account for the deaths of the two poor little ones whose milk supply was derived from it; but Dr. Gray had a duty to perform, and he did it thoroughly and conscientiously, inquiring into the minutest details and establishing beyond possibility of dispute that the milk supply caused the two fatal illnesses.

Amongst other reasons mentioned by Dr. Gray as leading him to this inevitable conclusion were the following:—1. The symptoms, duration of illness, and *post-mortem* appearances were alike in both cases. 2. The only food supplied in common to the two children was milk. 3. The milk was from one and the same source, viz., the dairy just described. 4. The fatal attack of illness in each case commenced very shortly after the child had taken a drink of this milk, and vomiting recurred after each of many draughts of the same milk.* 5. The milk drunk by these children was neither scalded nor boiled, as was the case with some of the other children who had partaken of it. 6. The amount of the milk taken by these two children was far greater than that consumed by any other individual. 7. Most unwholesome conditions prevailed throughout the dairy premises, even the milking being conducted in such a manner as almost to insure contamination. 8. The water supply at these premises was of a grossly filthy condition.

Dr. Gray's report is accompanied by some remarks written by Dr. D. Astley Gresswell, Principal Medical Officer to the Victorian Government, endorsing the conclusions arrived at by Dr. Gray. Perhaps one of the most astounding facts connected with this remarkable history of milk poisoning is that the Colonial Medical Board have frequently (as mentioned by Dr. Gresswell) drawn attention to the imperative necessity for Local Councils directing their Officers of Health themselves, or through their inspectors, to exercise the power possessed by the Councils for securing the wholesomeness of dairying premises; and that as recently as May 17th

previous, the Officer of Health of St. Kilda reported, in answer to a special inquiry made by the Colonial Medical Board on the subject, that the dairies in that district were "under constant supervision," though at that very date the dairyman referred to in this report had been conducting his business for some months in a manner eminently fitted for poisoning his customers.

EDITOR.

SEWER AND DRAIN VENTILATION.

By R. READ, Assoc. M.I.C.E., M.S.I., *City Surveyor, Gloucester.*

Introduction.—A system of drains and sewers consists of a number of lengths, or branches, of underground pipes, of gradually increasing diameter and varying gradients, converging towards the lowest point or outfall of the system, where the sewage, more or less diluted, is discharged by gravitation.

The drains are the units of the system, and their total length is largely in excess of that of the sewers, with which they are connected.

The great majority of drains and sewers in a town consist of glazed stoneware pipes, and the remainder of brick or concrete culverts.

The flow through the drains is intermittent, but a sufficient number are always in use together to keep a continuous stream flowing through the sewers, but varying, both in volume and velocity, with the time of day, the amount of water supply, and rainfall. The fluctuations in the volume of sewage are frequent, the maximum flow in dry weather occurring between 9 a.m. and 2 p.m., when about half the daily water-supply of a town passes into the sewers; but rain may cause a sudden or gradual increase at any time.

Sewer always full.—The remaining space above the sewage in a drain or sewer is always filled with air, watery vapour, or gas, or a mixture of two or all of these.

Minimum Velocity.—In a sewer running half full, a minimum velocity of 180 feet per minute is necessary to prevent the deposit of solid sewage, unless special means of flushing are adopted to prevent it; but this velocity will discharge sewage at the outfall from any part of a town long before decomposition can take place. When solid deposit occurs in any drain or sewer, decomposition quickly ensues, and sewer gas, as distinguished from sewer air, is produced in increasing quantity, until the obstruction is removed.

Compression and Expansion.—Sewer air is alternately compressed and expanded against the crown of the sewer,

* Vomiting was an early and persistent symptom, and each child suffered greatly from thirst, which the mother vainly tried to relieve by giving more of the same milk as a drink.

by the rise and fall of the sewage, and also by the increase and decrease in barometric pressure; the latter action is particularly observable before a storm.

Watery vapour is constantly given off from the surface of the sewage, as from any other wet surface in contact with air; and both the watery vapour and sewer gases, if any are present, diffuse themselves throughout the sewer air, until the point of saturation is reached in an unventilated sewer. The percentage of moisture in the sewer air is lowered by ventilation, and the more perfect the ventilation, the nearer the sewer air compares with the outer air.

Temperature.—The temperature of sewage and of sewer air is generally lower than that of the outer air during the summer, and higher during the winter.

Forces at Work.—Movements of sewer air are produced by compression, expansion, diffusion, differences of temperature, and barometric pressure. These movements cannot be measured by the anemometer, but are made visible by the condensing of the watery vapour in cold weather, or by the introduction of smoke.

Down-hill Currents.—A velocity of 180 feet per minute in the sewage will generally carry the sewer air downhill with it, and the movement is accelerated by every intermittent discharge from the drains.

Wind.—The most powerful agent in producing movements, in the sewer air is the wind, which acts by inducing a vacuum in, or by blowing directly into, any opening in the sewers or drains, according to the position of the opening and the direction and force of the wind.

Unventilated Sewers.—All attempts to keep sewer air and gas bottled up within the sewers and drains having failed, ventilation was reluctantly adopted for want of something better; and it is now a generally recognised fact, that unless some provision is made to ventilate sewers and drains, they will ventilate themselves in a dangerous manner.

Earliest Sewer Ventilation.—The first ventilation was most probably unintentional, by untrapped rain-water pipes, and by overflow pipes from rain-water cisterns becoming untrapped in dry weather, thus allowing the passage of sewer gas into houses.

Street Gratings.—To relieve the pressure upon sewers and drains, manholes, at long distances apart, were ventilated by open gratings at the street level, and these have been gradually increased in number and area of openings, on the assumption that the nearer the approach to an open trench, the better; and now they are placed from 40 to 200 yards apart, while the openings ranging from 30 to 72 square inches in area.

This method of ventilation by gratings at the street level only, simply provides safety outlets, to prevent too great an accumulation of gas; but it is vent only, without ventilation, as the movements of the sewer air are very slow, feeble, and uncertain, unless there be a good wind, a rising barometer, and a fast running stream of sewage.

The differences in height between any pair of adjacent gratings at the street level is generally so small that there is no marked tendency for either to become an inlet, in preference to an outlet, and puffs of wind may make them act feebly both ways, during a few seconds, without greatly affecting the air within the sewer.

With a falling barometer the watery vapour and sewer air acting by expansion and diffusion rise out of the street gratings, and should there be decomposing deposit in the sewer, or in any drain connected with it, a nuisance will be apparent, for which the gratings will be blamed, although they only call attention to the existence of defects which they did not cause and can only partially remedy.

Shafts carried above roofs.—In consequence of complaints, the street gratings in some towns have been closed, and iron pipes, erected against buildings, substituted. This is still vent only, without ventilation, and a reproduction of the action of the street gratings at a higher level, without dealing with the first cause of the nuisance.

Partial Sewer Ventilation.—Neither of the above-named systems of venting to relieve internal pressure by partial ventilation, inducing a mere tendency to vacuum at the mouths of a number of outlets, whether at the street level, or above the roofs, can be anything more than a manufactory of gas, the currents of air having no power to penetrate far beyond the mouths of the openings. At intervals, however, discharges of gas must take place, and the longer the interval the more dangerous the sewer gas becomes.

The constantly changing conditions under which a system of sewers and drains act are such that it is as impossible to stop at partial ventilation, as it is to have no ventilation at all.

Comparison with a Mine.—The leading idea which for a long period governed attempts to ventilate sewers, was, that it was a similar problem to the ventilation of mines, whereas the conditions are entirely different. In a mine, all the air entering a down-cast shaft must traverse the working and pass out through the up-cast shaft, these being the only two possible openings. But any attempt to draw air through a sewer will not be felt at a greater

distance than 400 yards, and only under very favourable conditions will the distance exceed 100 or 200 yards. This was conclusively proved in 1858, by Sir Joseph Bazalgette and Colonel Heywood, by experiments on a large scale, with a furnace at the Westminster clock tower.

Wimbledon Experiments.—More recently, in 1887–88 Mr. Santo Crimp, at Wimbledon, had 600 yards of 12-inch sewer trapped off at the lower end; an opening, of 28 inches area, was made at the street level just above the trap, and a 6-inch opening at the upper end, all other known openings being closed. There was a difference of level, of 100 feet, between the two openings, and a fan attached to the upper one drew air from the sewer at the rate of 300 cubic feet per minute for 14 hours, and during the same period the sewer air continuously discharged itself from the lower opening 600 yards away, at a velocity of from 42 to 104 lineal feet per minute, thus showing that one or more accidental openings must have existed, and that the friction of the flow of sewage, and the action of the wind, were sufficient to bring the sewer air down to the lower opening, in spite of the powerful fan at work at the upper end.

On removing the fan the 6-inch pipe was carried up a building 25 feet high, and anemometers attached to the lower openings showed that during 1888 the air current was downward at that point on 273 days, and upward on 97 days. Unfortunately, no anemometers appear to have been used at the upper end of the shaft.

Notwithstanding these facts, the favourite recommendations made by newspaper correspondents has always been to connect with a factory chimney, on the assumption that it will entirely clear a whole system of sewers, and cremate the gases. Factory chimneys are usually confined to one quarter of a town, and although velocities from 500 feet to 2000 feet per minute can be obtained by connecting with them—and in some towns costly stacks 100 feet high have been specially erected for the purpose—their effect upon ordinary sewers is only local, and very limited in extent; so that it is like shooting at a sparrow with a 100-ton gun.

Keeling's "Destructor."—The most recent apparatus for ventilating sewers by artificial means is Keeling's Patent Sewer Gas Destructor, an arrangement of lamp column with a 6-inch connexion from the sewer for passing sewer air through an atmospheric gas-burner fixed in the base of the column, the outlet being about 10 feet above ground, under an ordinary street gas-lamp, placed at the top of the column; a consumption of coal gas from 6 cubic feet to 10 cubic feet per hour is required to keep them burning, and produces a heat of

about 600° Fahr. at the burner, and about 100° Fahr. at the outlet, where the velocity is about 200 feet per minute, or equal to about 40 cubic feet of air extracted per minute.

The advantages claimed for this apparatus are that sewer gas is entirely cremated, and that one destructor will suffice to ventilate fabulous lengths of 12-inch sewer, variously stated, or inferred, as somewhere between 1000 yards and nine miles; but no such distances can be effected by any such apparatus if a fan, or a factory chimney, of ten times the power, cannot do it.

The apparatus costs about 15%, fixed complete, and about 10% per annum for gas, and is a useful luxury as an aid to natural ventilation if properly applied at the lower end of a sewer, instead of at the upper end as recommended by the patentee.

Its greatest use is for dealing with the emanations from a very foul sewer; but this is treating the symptoms of the disease, instead of the disease itself, for such a sewer requires reconstruction first, and ventilation afterwards.

True Sewer Ventilation.—Nearly all attempts to maintain a constant current of air flowing in one direction have failed because they have not been in harmony with the forces at work within and without the sewers. The streets are the only places where municipal authorities are free to ventilate sewers as they please; therefore, the gratings at the street level have always been more numerous than shafts above the houses; and so long as this is the case, no constant current of air inwards at the street gratings can be maintained. There can be no true ventilation without a system of both inlets and outlets; the street gratings should be comparatively small to always act as inlets, and the outlets should always be above the roofs of the houses, and much more numerous than the inlets. It is necessary, therefore, in order to give a strong initial velocity at the inlets, and to localise the ventilation, that the street grating inlets should not exceed 30 or 36 square inches area, placed from 60 to 100 yards apart, and that the outlets should be distributed over these lengths in such numbers of 4-inch or 6-inch shafts that the sum of their sectional areas, between each pair of inlets, shall exceed the sectional area of the sewer as much as possible.

This arrangement can only be obtained by terminating every house drain by a 4-inch pipe, or 6-inch shaft, carried above the roof as an outlet, with no obstruction between it and the sewer; the fresh air will then constantly enter at every street grating, with a minimum velocity of 100 to 200 feet per minute, travel down the

sewer with the sewage, and up every drain and outlet pipe or shaft above the roofs. Each length of 60 or 100 yards of sewer between a pair of inlet gratings, and all the drains connected therewith, will then be thoroughly ventilated by a localised continuous current which cannot be reversed, and which will require no traps, flaps, valves, or other obstructions, except at the gullies and w.c.'s, to isolate or direct its course; the velocity of the current will only increase with the wind, from whatever quarter it may blow, and sewer gas will have no chance of existence.

Interceptors.—The above-described system requires the abolition of the so-called 'Interceptor' traps, which obstruct the flow of the sewage, and render the true ventilation of the sewers impossible. They are the only form of unventilated syphon trap now tolerated, and oppose the inertia of about three gallons of stagnant sewage to each discharge through the drain; this sewage in the 'Interceptor' never gets entirely changed, and is constantly manufacturing gas on its own account and thus constituting a greater danger to the inhabitants of the house than the sewer with which the drain so trapped is connected.

Flushing.—Every w.c. should be provided with a mechanical apparatus, or cistern, for flushing after every use, to keep the drains properly clean in the intervals between rainfalls, because the water so applied must of necessity pass through both drains and sewers, while whatever the quantity of water used by the municipal authorities for sewer flushing, it can only pass through the sewers, leaving the drains untouched, and thus wasting a large quantity of water which would be more usefully and economically employed if passed through the drains as well as the sewers.

Object of Sewer Ventilation.—The true object of sewer ventilation is not to let out at intervals quantities of sewer gas of increasing foulness, but to introduce into properly-constructed sewers and drains such a constant current of air as will prevent the formation of sewer gas altogether.

The systems of partial ventilation now in use merely provide sufficient oxygen to facilitate the formation of gaseous compounds without rendering them harmless.

Honey is frequently adulterated with glucose, which can be readily detected. The admixture of any marked amount of glucose with honey will cause it, when ignited, to leave an ash which has a neutral reaction on test-paper. The ash of true honey is always alkaline, and contains from 0.1 to 0.3 per cent. of acid, differing in this respect from all artificial honeys.

ON BROMINE AND IODINE AS AËRIAL DISINFECTANTS, AND A NEW METHOD OF APPLYING THEM.

By GERALD T. MOODY, D.Sc., and F. W. STREATFIELD.

THE question of suitable aërial disinfectants for employment in hospitals and sick-rooms is one of very great importance, and has not, perhaps, hitherto received the attention it deserves. Of the various substances employed, bromine has come largely to the front in recent years, and iodine has also been found to exert a considerable disinfecting action, although less than that of bromine, weight for weight.

No small difficulty has, however, been experienced in finding a convenient method of introducing these elements into the atmosphere. Various forms of lamps have been devised for the gradual volatilisation of iodine and its diffusion through the air; and many have sought to effect the same purpose through the medium of the candle or night-light. Whilst working in this direction, and with the endeavour to volatilise by means of a burning candle certain volatile brominated organic derivatives of the aromatic series, it was discovered by one of the authors of this paper that *free* bromine vapour was evolved in quantity during the combustion of the candle. On extending the experiments to iodine derivatives a similar result was obtained. The authors, therefore, turned their attention to the preparation of a satisfactory bromine and iodine candle.

A modern candle is a very delicate piece of work, being the outcome of many years' experience and of much scientific and technical skill. Next to the proper refining of the fat or wax, the fabrication and chemical treatment of the wick are points of great importance, in order that the candle may burn with a bright flame, and free from cauliflower head. A very small quantity of a foreign body introduced into the substance of the candle causes a very marked effect on its combustion. Many of the disinfectants proposed for distribution by the aid of the candle caused it to burn very indifferently, and sometimes to be extinguished within an hour; or worse still, where it was sought to diffuse the vapour of certain balsamic or phenolic principles, the disinfectant itself underwent combustion, and thus defeated the object in view. In the case where the free halogen was simply mixed with the combustible material of the candle, failure resulted from the escape of part of the halogen during storage, whilst the remainder gradually destroyed the material of the wick. After making numerous experiments, the above-mentioned difficulties were over-

come, and the authors succeeded in preparing candles and night-lights which do not undergo change in keeping, and by means of which any required quantity of the halogens, bromine and iodine, may be evolved with great exactness. This result has been accomplished by incorporating stable haloid organic compounds with the substance of the candle or night-light. Up to the present the most successful halogen compounds used have been dibromonaphthalene, $C_{10}H_6Br_2$, and iodoform, CHI_3 . These substances are perfectly stable at ordinary temperatures, but when burnt under the conditions obtaining in a candle or night-light prepared from pure, well-pressed, tallow give rise to free bromine or iodine vapour respectively.

That the free halogen is evolved is shown by the odour produced; and its presence may be visibly demonstrated by the usual chemical method of holding at a short distance above the flame a piece of unsized paper moistened with a solution of starch and potassium iodide, which is rapidly turned blue.

The liberation of bromine and iodine during combustion may probably be explained on the assumption that the corresponding hydracids are formed in the first instance, and that these suffer decomposition, at the temperature of the flame and in the presence of atmospheric oxygen, into the free halogens and water, in accordance with the equations:—

(a) $4 HBr + O_2 = 2 H_2O + 2 Br_2$ Hydrogen bromide and oxygen give water and bromine.

(b) $4 HI + O_2 = 2 H_2O + 2 I_2$ Hydrogen iodide and oxygen give water and iodine.

The authors found that a very useful strength for general purposes is about 6 grains of either halogen compound in a 9-hour night-light; during combustion this will liberate bromine or iodine, the amount of which may be calculated as follows:—

The iodine night-light contains 6 grains of CHI_3 , —C, $12 \times 1 = 12$; H $\times 1 = 1$; I_3 , $127 \times 3 = 381$; or, 394 grains of iodoform in a night-light will give $\frac{381 \times 6}{394} = 5.80$ grains of iodine liberated during the nine hours.

The bromine night-light contains 6 grains of $C_{10}H_6Br_2$; as before, —C₁₀, $12 \times 10 = 120$; H₆, $1 \times 6 = 6$; Br₂, $80 \times 2 = 160$; or the total 286 grains of dibromonaphthalene yield 160 grains of bromine, and consequently 6 grains of dibromonaphthalene will give 3.35 grains of bromine during nine hours.

By means of the above-given calculation, it is easy to bring about the evolution of a stated quantity of either

halogen, as during each hour's burning there will be evolved, of free iodine 0.64 grain, of free bromine 0.37 grain. By increasing or diminishing the quantity of the halogen compound mixed with the candle or night-light, any quantity of halogen, within reasonable limits, may be diffused.

The authors believe that the hygienic value of their discovery is very great, since it will make it possible for the vapour of bromine to be used as a household disinfectant in a safe and efficient manner, and where it will be likely to do most good. It is especially for sanitary purposes that the bromine candles or night-lights are most likely to be useful, and there is no doubt that they will prove of service for disinfecting closets, lavatories, and wherever sources of infection have to be guarded against. It must be understood that the bromine paper evolved by the burning candle or night-light does not cause the slightest personal inconvenience in practice, candles containing about 6 grains of bromonaphthalene having been burnt nightly by one of the authors during a period of two years. All the time the candle is burning, the odour of bromine is distinctly perceptible, but by no means disagreeable. Similar remarks apply to the iodine candle or night-light, which, besides being effective as a disinfectant and deodorant, has the advantage of possessing a therapeutical value in diseases of the throat, nose, and lungs.

PUBLIC HEALTH REPORTS.

Kensington.—Population in 1891, 166,308. Dr. T. Orme Dudfield reports that in the four weeks ending on December 2nd, the births were 290, and the deaths 266. After making due allowance for the increase of population, the births were 5 below, and the deaths 53 above, the numbers registered in the corresponding weeks of the previous ten years. A similar increase of the death-rate has been noticeable throughout the Metropolis for some little time past. In Kensington the greater average mortality had the effect of bringing the average annual death-rate up to 20.7 per 1000 inhabitants, or 5 per 1000 above the decennial average (15.7). Of the total number of deaths registered 84 were those of children under five years of age, including 44 under one year; by a somewhat singular coincidence the mortality at the other end of the life scale was the same, as regards numbers, 84 persons dying, aged sixty years and upwards. The chief mortality was from affections of the respiratory organs, 70, including bronchitis, 43, and pneumonia, 17. The deaths from phthisis were 25, and from diseases of the heart 22.

Scarlet fever and small-pox have both been prevalent in Kensington, though fortunately not of a severe type. If the Asylums Hospitals accommodation were sufficient, both of these infectious diseases, as well as diphtheria, would doubtless soon diminish in the Metropolis. In *HYGIENE*, some time back, we published an article by Dr. Dudfield on the subject of the relation of the infectious hospital accommodation to the needs of the Metropolis. Dr. Dudfield estimated the requirements at 6150 beds, a number which was thought by many to be unnecessarily high. But the Clerk to the Asylums Board has just issued a Memorandum dated December 4th, in which, after showing that the existing hospitals under the Asylums Board contain accommodation of about 3400 beds, he expresses the opinion that "it would probably not be a serious exaggeration to say that double that number would not have been an excessive provision for the needs of the past few months." Double 3400 would, of course, be 6800, or 650 more than Dr. Dudfield's disputed estimate. Further comment is needless.



THE INSPECTION OF MEAT, WITH REGARD TO THE PREVENTION OF DISEASE.

*By FRANCIS VACHER, F.R.C.S., lately Medical Officer of
Health, Birkenhead.*

(Concluded from page 435.)

IV. THE APPOINTMENT OF COMPETENT INSPECTORS OF MEAT.—I have just spoken of butchers' shops and their regulations. Though these premises and their contents would of course be subject to inspection, I would have all meat inspected before it reaches the shops, and by thoroughly competent inspectors. This should be done at the public abattoir, and the selection of men to discharge such a duty is no simple task. All the qualities required in a perfectly competent inspector of meat it is impossible to find combined in one person, and it follows that in no district should the inspection of meat be intrusted to one person as it often is at present. Connected with every public abattoir there should be a primary inspector or sub-inspector. There is no objection to the superintendent of the abattoir being appointed to this post, provided he is qualified. The best man for the post is, in my opinion, a man brought up as a butcher, who is a fair judge of meat, familiar with the appearances of healthy viscera, and not without some knowledge of the tricks of the trade. To every public abattoir there should also be appointed a veterinary surgeon, who might be entitled "veterinary inspector."

He would act in conjunction with the primary inspector, and advise him as to the interpretation of morbid appearances, &c. The veterinary surgeon, appointed under the Contagious Diseases (Animals) Acts in any district, would be probably best suited for this office. Above these officers, and acting in all cases as the chief inspector, must be the medical officer of health. However capable the veterinary inspector and the primary inspector, the responsibility of deciding what shall pass and what shall be seized must always rest with the medical officer of health. The question to be decided on behalf of the public is not one of pathology. It is not, "Is this tuberculosis generalised or localised?" It is, "Is this meat fit for food of man or not?" This question the medical officer of health answers, after examining the carcase and viscera, and hearing the veterinary inspector and primary inspector. The medical officer of health cannot put this burden on any one else's shoulders, and he should clearly understand this and qualify himself to give a right answer in all cases. However, this is but one of the many duties the medical officer of health is called upon to perform, and however able one cannot expect him necessarily to be a pathological expert and bacteriologist. Every public abattoir requires a further officer—a pathological expert—who would be consulted when necessary, and examine and report on specimens sent to him. The best man for this purpose will ordinarily be the professor of pathology in the nearest medical school. It may seem extraordinary that four regularly appointed officers are required for meat inspection at every public abattoir, but if the work is to be efficiently done none less will suffice. Ordinarily only one of the four would give the whole of his time to the work. The same pathological expert might be appointed for many public abattoirs, just as the same analyst is often appointed for many districts. I pass on now to a subject kindred to the appointment of meat inspectors.

V. THE GENERAL SYSTEMATIC INSPECTION OF ANIMALS AND MEAT TO BE USED FOR FOOD OF MAN.—If killing and dressing animals to be used for human food be only allowed at public abattoirs, systematic inspection becomes a comparatively simple matter. The animals would be received at the lairages forming part of the premises at the public abattoir, and their being left there for so many hours previous to slaughter should be required. They would then come under the observation of the veterinary inspector in his daily visits, and any obvious physical signs of disease in the live animal would be noted. As I propose that master butchers should be

licensed, there would be no great hardship in requiring all journeymen butchers and slaughtermen employed at the public abattoir to be licensed. The Sanitary Authority would thus have direct control over them, and secure their obedience to all abattoir regulations. One of the most important regulations would be the keeping of the offal of each carcase separate, and submitting it for inspection with the carcase.

Every animal brought to a public abattoir is, of course, booked, to insure correct returns of slaughter-house dues. If the carcase be found perfectly sound, the entry in this book should be initialled by the veterinary inspector and sub-inspector, signifying that it is so, and may be removed by the owner. If, on the other hand, the carcase be found diseased in any way, the entry in the book should be marked "D" (doubtful), the carcase and offal should be removed to the *post-mortem* room, or other suitable locked room, and information sent to the Medical Officer of Health. With as little delay as possible this officer should examine the carcase and offal. If he thinks the meat may pass he makes an entry to that effect in his book which gives authority to the person in charge of the abattoir to have it carried back to the cooling-room. If, on the other hand, he is of opinion the meat should be seized, he takes steps for having it submitted to a justice, and applying for an order to destroy it. If there be insufficient evidence as to the nature or extent of the disease, the expert appointed by the Sanitary Authority should be consulted, and portions of the carcase and offal sent to him. The carcase should not be disfigured in any way till the justice has ordered it to be destroyed. If the hearing of an application for an order to destroy the carcase be adjourned the carcase in the interim should be kept in the locked room at the public abattoir. If the adjournment be for several days, the carcase should be kept by the Sanitary Authority in a chilled chamber.

The last matter I have to refer to is:—

VI. THE APPOINTMENT OF COMPETENT ASSESSORS TO SIT WITH MAGISTRATES AND ASSIST THEM WHEN NECESSARY IN THE HEARING OF CASES RELATING TO DISEASED MEAT.—All the reforms hitherto referred to can be of little avail if, when application is made to a justice for an order to destroy a diseased carcase, the application is refused. The slaughtering of animals may be done in a suitable building under proper supervision, butchers may be licensed, capable inspectors may be appointed, and all meat prepared for food may be carefully inspected; but if the justice refuses to order the destruction of the diseased meat, when discovered and

seized, it has to be returned to the owner, and is eventually sold to the public. The action taken in the interest of the public has cost time and money, and no one is benefited, the Sanitary Authority is discredited, the consumer is deluded with a sense of false security, and the butcher openly sells meat tainted with anthrax or tuberculosis. It is not the occasional leniency of the bench in dealing with meat cases that is complained of, it is not that bias against the Sanitary Authority is ordinarily manifested; it is simply that lay magistrates and even stipendiaries are not good judges of such very technical matters as are submitted to their intelligence in most cases. If, when a judge is trying a case dealing with shipping matters, a nautical assessor is allowed him, is it not reasonable to ask that he be allowed a scientific assessor in trying a case when the issues depend on difficult questions of morbid pathology? Without such assistance the magistrate may be at his wits' end trying to hold the scales of justice evenly in the midst of conflicting scientific testimony, the very language of which is foreign to him. The applicant is embarrassed with inquiries as to what would be the precise effect on the human subject after the ingestion of the meat in question, and ultimately the only way out of the difficulty (scientific witnesses being as plentiful on one side as the other) is for the magistrate to personally examine the meat and judge by the mere appearances. This is quite as likely to lead the magistrate wrong as right, for meat from a badly diseased animal may look perfectly wholesome. Indeed, if meat were condemned or passed merely on its external appearance, no elaborate system of meat inspection would be needed. Any market-constable, or any housewife, is able to judge whether meat be fresh or stale, whether it be young or old, whether it be in good condition or poor condition.

REVIEWS AND NOTICES OF BOOKS.

Patent and Quack Medicines. By Joseph Tillie, M.D., F.R.S.E. (Edinburgh: Macniven & Wallace. 1893.)

This is a reprint of a lecture delivered on the 16th instant at a meeting of the members of the Edinburgh Health Society—an association which was instituted in 1881, and has since done excellent work in promoting the cause and disseminating the principles of hygiene. Its present President is Lord Rosebery, and it includes amongst its members a considerable number of representative Scotch men and women. The objects of the Society, as set forth in its prospectus, are to promote

attention to personal and domestic cleanliness, comfort, self-denial, temperance, and the laws of health generally. Lectures are delivered periodically during the winter by able sanitarians.

Dr. Tillie's lecture was given before a very large and appreciative audience, and the high professional status of the lecturer (whose name is well known in connexion with the *Materia Medica* department of the Edinburgh University), the telling manner in which the lecture was delivered, and the interesting and amusing facts brought to bear on the subject, must have convinced all of the immense amount of quackery and humbug of patent medicines. Dr. Tillie quoted frequently from the series of articles* which have appeared in our pages, and warmly eulogised HYGIENE for the good work that this journal has done in exposing quacks and quackery.

DIETETIC NOTICES.

Diastase, obtained from malted grain, constitutes a decided improvement upon the old style of bread-making, as it not only facilitates fermentation, and renders the bread more palatable, but also assists digestion by chemically acting on the starchy matter of the food, which it converts into maltose sugar. This primary process of digestion is accomplished in the healthy condition by the action of the saliva upon the starch contained in bread. When the salivary secretion is insufficient to carry out its natural function, bread, when eaten, is apt to cause digestive discomfort upon reaching the stomach; this undesirable state of things can be obviated by the judicious addition of diastase to the dough during the making of the bread. Very little is required, as may be gathered from the statement of the Patent Diastase Bread Improvement Company that the cost of the diastase required is only a few pence for 280 lbs. of flour. In evidence of the efficiency of diastase in facilitating digestion, we may mention that if any one is troubled with indigestion through non-conversion of the starchy elements of food into maltose sugar, the unpleasant symptoms can be speedily removed by taking a small quantity of diastase in water. Amongst the advantages derivable from the use of diastase in bread-making, is the improvement in the keeping capabilities of bread prepared with its aid, as the loaf remains moister and sweeter for a longer period than other bread.

Cholera is re-appearing to a remarkable degree in Russia. On the 23rd inst., twenty-seven fresh cases of this disease and fourteen deaths were notified to the authorities in St. Petersburg.

* *Patent alias Quack Medicines.* A cheap reprint of the whole of these articles will appear next week. For particulars see our advertising columns.

NEWS AND NOTES.

The Insanitary Condition of the Regent's and Grand Junction Canal has for many years been a subject of complaint amongst all residents in its vicinity. At a conference of the sanitary authorities chiefly interested, held in the London County Council buildings, Spring Gardens, it was decided to address the Board of Trade on the subject, in the hope that they would bring influence to bear on the two companies owning the canal.

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Metropolitan Water Supply.—The draft Bill of the London County Council seeks for powers to enable the Council to purchase or acquire, as opportunity may offer, any areas or water rights, the possession of which it might regard as likely to be valuable in the future. It will be seen that this paves the way to a more comprehensive, economical, and satisfactory state of things than being tied down merely to buy over the existing water companies' properties at the exaggerated price that has been put upon them.

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Easily Satisfied.—In some agricultural parts of England, a distich is in use which serves to show alike the occasionally straitened circumstances of the labourers, and the wonderful resignation with which they bear their privations:—

"They as hasn't beef must be thankful for bread,

And give praise to the Lord, it's not turmits (turnips), instead."

RECENT HYGIENIC PATENTS.

THE following list of recent Applications for Hygienic Patents (between December 11th and 16th) is compiled specially for HYGIENE by Mr. W. Mellersh-Jackson, Patent Agent, 75 Chancery Lane, London, W.C., from whom further information may be obtained.

No. 23,819. "A New or Improved Invalids' Kettle, Steam Heater, Vaporiser, Deodoriser, Inhaler, and Toilet Vapour Bath."—A. GOUGH.

No. 23,821. "Improved Device for Medicine Timing."—F. F. RITCHIE.

No. 23,831. "Improvements in Apparatus for Pickling and Preserving Meats."—T. G. STEVENS and A. STAGG.

No. 23,874. "Baby's Medicine Tube and Soothing Teat combined."—C. O'NEILL.

No. 23,884. "Improvements in Surgical Injectors and the like."—W. P. THOMPSON.

No. 23,907. "Improvements in Closets or Privies, and in Treating, Collecting, and Utilising Night Soil and Dust-Bin Refuse, and in Apparatus Employed therein."—T. P. MARSH.

No. 23,927. "Improvements in Syringes."—A. B. CRUICKSHANK.

No. 23,946. "A Regulating and Automatic Outlet Ventilator."—D. DEAN.

- No. 23,957. "The Anti-Damp Sole."—F. BALLARD.
 No. 23,963. "An Appliance for the Prevention of Head-ache and Premature Baldness in connexion with Hats."—A. C. HEWITT.
 No. 23,974. "A Distinctive Bottle, Vessel, or other Receptacle for the Containing of Poisons."—R. FLETCHER.
 No. 23,991. "An Improved Spigot for Earthenware Fittings, Drain Pipes, and the like."—W. E. MUNRO.
 No. 24,052. "Improvements in Syphons for Closet or other Cisterns."—W. SHARP and W. CRUICKSHANKS.
 No. 24,106. "Improvements in Instruments or Appliances to be used in the Operations of what is known as 'Massage' Treatment."—J. FISHER.
 No. 24,115. "Improvements in Respirators."—R. COPLEY.
 No. 24,116. "Improvements in and Applicable to Enemas."—R. COPLEY.
 No. 24,117. "Improvements in Medicinal Pads."—R. COPLEY.
 No. 24,120. "One-Piece Branch (Water Closet) Connexion Pipes."—F. SPEED.
 No. 24,190. "Improved Means for Transporting and Maintaining Food in a Heated Condition."—J. LAY.
 No. 24,209. "A New or Improved Bottle Stopper for Poisonous and Dangerous Medicines."—H. P. MILLER.
 No. 24,219. "A Poison Alarm."—E. J. ORCHARD.
 No. 24,239. "An Improved Anæsthetic Gas Stand for administering Nitrous Oxide."—C. R. BEAUMONT.

ANSWERS TO CORRESPONDENTS.

SPECIAL NOTICE TO SUBSCRIBERS.—The present number completes the Seventh Volume of HYGIENE, and that for January 6th will begin the Eighth Volume. Subscribers will oblige by sending their subscriptions for 1894; 6s. 6d. for the 12 months, post free.

Diet.—Bread is certainly more nutritious, weight for weight, than potatoes. An experiment made by Hirschfeld upon himself is sufficient to demonstrate this fact. After a very long march he required 400 grammes of bread to satisfy his hunger. On a subsequent occasion, and in exactly corresponding circumstances, he found that as much as 700 grammes of potatoes were necessary for a similar purpose. In addition, it may be mentioned that the heat-producing power of bread is in the proportion of 10 to 7, as compared with potatoes, when taken alone.

H. M. (Calcutta).—The whole of the articles on "Patent *alias* Quack Medicines" have been reprinted in a cheap form, about 160 pages, for 6d. A new series will be commenced in our next issue (Jan. 6th, 1894).

W. L. (Nottingham).—Violent exercise is seldom unattended by risk to health, even in persons who have gone through a careful course of training.

Materfamilias.—Give the infant plenty of good cow's milk, clothe it warmly, and let it have plenty of outdoor exercise. You will find this natural treatment better than drugging it.

Mons. Valois (Paris).—1. If you should continue to experience any difficulty in getting HYGIENE, our publishers will send it by post. 2. Thanks for good wishes; we have numerous French subscribers.

A Dyspeptic (New York).—Our acquaintance with "glycozone" is limited to seeing it advertised in some American papers. The name is apparently derived from *glukos*, sweet, and *ozone*—a high-sounding title, and full of promise to believers in newspaper medicines; but, for all we know, it may only be *glycyrrhiza* (liquorice) also derived from *glukos*.

M. O. H.—Our next number will begin a new volume.

J. B. N.—We should like to have further particulars.

C. G.—Sir Thomas Browne, M.D., was born in 1605, and died in 1682. His best literary work was that on *Urn-burial*, in which he advocated a return to the ancient method of disposal of the dead.

Oxonian and *L. T.* are referred to the answer to *H. M.*

S. W.—Our publishers could advise you as to the best and cheapest way of bringing out your pamphlet.

An Asthmatic will find an article on Cornwall as a Winter Resort for Invalids in HYGIENE for November 3rd; Ilfracombe was described in our series on British Health Resorts, HYGIENE, August 18th.

Mr. Stewart (Belfast), can have our journal sent, post free, for the whole of 1894, for 6s. 6d. prepaid.

Dr. Ernest B. Voisin (Jersey).—Thanks for the interesting information, which we hope to make use of soon.

EDITORIAL AND PUBLISHING NOTICES.

EDITORIAL.—The Editor begs to express his thanks to numerous correspondents, and to state that he will be pleased to receive any articles or correspondence coming within the scope of HYGIENE, books or pamphlets for review, reports of medical officers of health, items of general or local sanitary interest, newspapers (marked at the part to which it is desired to draw attention), &c.

ADVERTISERS are requested to bear in mind the greatly increased circulation of HYGIENE, with its weekly issue and reduced price. In addition to the large regular circulation, many thousands of copies are distributed annually to sanitary officials, medical men, private addresses, public libraries, clubs, hotels, &c.

